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MIND

A QUARTERLY REVIEW
OF
PSYCHOLOGY AND PHILOSOPHY.

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EDITED BY
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PROFESSOR IN UNIVERSITY COLLEGE, LONDON.

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ERRATA.

For *Olaus Magnus*, read *Horrebow*, p. 90, l. 14.
„ *longer*, „ *shorter*, p. 132, l. 16.
„ *with*, „ *within*, p. 221, l. 28.
„ *Corvex*, „ *Cortex*, p. 271, l. 19.
„ *Sanders*, „ *Sander*, „ ll. 35, 46.

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MIND

A QUARTERLY REVIEW
OF
PSYCHOLOGY AND PHILOSOPHY.

I.—PREFATORY WORDS.

The first English journal devoted to Psychology and Philosophy, MIND appears in circumstances that call for some remark.

That no such journal should hitherto have existed is hardly surprising. Long as English inquiry has been turned on the things of mind, it has, till quite lately, been distinguished from the philosophical thought of other countries by what may be called its unprofessional character. Except in Scotland (and even there Hume was not a professor) few British thinkers have been public teachers with philosophy for the business of their lives. Bacon, Hobbes, Locke, Berkeley, Hume, Hartley, the Mills did their philosophical work at the beginning or at the end or in the pauses of lives otherwise active, and addressed for the most part the common intelligence of their time. It may not have been ill for their fame; but their work itself is not what it otherwise might have been, and their manner of thinking has affected the whole character and standing of philosophical inquiry in England. If their work had been academic, it would probably have been much more sustained—better carried out when it did not lack comprehension, more comprehensive when it was well and carefully begun. The informality of their thought has undoubtedly prevented philosophy from obtaining the scientific consideration which it holds elsewhere. There has not been wanting in England a generally diffused interest in the subject, such as is fed by discussions, more or less philosophical, mixed up with lighter literature in the pages of miscellaneous magazines; but of special interest, like that felt in mathematics or physics or chemistry by a multitude of active workers and a multitude of trained and continuous learners, there has hitherto been little. Even now the notion of a journal being founded to be taken up wholly with metaphysical subjects, as they are called, will little commend itself either to those who are in the habit of declaring with great confidence that there can be no science in such matters, or to those who would only play with them now and again.

The signs, notwithstanding, that mental science and philosophy have for some time past been cultivated with a more single-minded endeavour, and that the class of those who are specially interested is growing steadily larger, are neither few nor uncertain. Not only in the present generation have psychological works, conceived in the traditional spirit of English inquiry, been elaborated as never before: other works have been written with the object of bringing English thought into direct relation with the general philosophical movement of Europe; and in still others there has been developed a new spirit of large system. Whether the seats of academic instruction have yet been stirred to due activity is a question that will be considered in these pages; but it certainly can no longer be said, even by candid friends at home, that English inquirers and thinkers are not active in every field of philosophical effort, and it has been said abroad that, however it be with physical science, at least in psychology and philosophy the countrymen of Locke at present are leading the van. Not less significant is the voice that is heard from the foremost physical inquirers crying out for a wider and deeper comprehension of nature. The need is everywhere felt, as where in Germany some of the best philosophical work is being done by men like Helmholtz and Wundt who began their career as physiologists, but it has nowhere been more signally manifested than in England. The unity that belonged to human knowledge under the name of Philosophy, before the special sciences were, is now, when the sciences stand fast, again sought for under no other name than Philosophy. In such circumstances, the institution of a journal that should aim at giving expression to all new philosophical ideas and at making English readers acquainted with the progress of philosophical thought in other countries, cannot be regarded as inopportune. The time, at all events, has come for gauging the extent and depth of the interest professed in philosophy.

The projectors of the new journal had little doubt as to the form it should assume. However deeply impressed with the need for an organ that should leave the freest scope to general philosophical thinking, they were not prepared to be responsible for a publication that would display only or chiefly the speculative differences of individual thinkers. It might be a useful enterprise to bring even these to light, and, unless all general philosophy were excluded from the journal, they could in no case be concealed; but other work, still more pressing, stood waiting to be done. Philosophical thought in England has for the most part been based on psychology, when not wholly merged in it; and psychology, pursued as a positive science, ought to yield a continuous harvest of results, coherent among themselves and standing in relation with other results garnered in the scientific field. That psychology has not been unfruitful is the conviction of all those who continue to cultivate it upon the lines of the past—with new lights, it may be, but still upon the old tracks. Few, however, of its cultivators will deny that it has been far from as fruitful as could be wished, and even the most ardent must admit that it has by no means won the rank of an assured science in the common esteem.* Now, if there were a journal that set itself to record all advances in psychology, and gave encouragement to special researches by its readiness to publish them, the uncertainty hanging over the subject could hardly fail to be dispelled. Either psychology would in time pass with general consent into the company of the sciences, or the hollowness of its pretensions would be plainly revealed. Nothing less, in fact, is aimed at in the publication of MIND than to procure a decision of this question as to the scientific standing of psychology. Nor is the question less really submitted for judgment, because the projectors of the journal themselves think that the issue is not doubtful, and that the question remains pending chiefly from ignorance of the actual state of psychological inquiry and want of enlightenment as to the true conception of science.

The prospectus that has been issued tries to give a general idea of the width of field, or rather the variety of fields, whereon the psychologist is in these days called to range. Physiological investigation of the Nervous System in man and animals, by which mental science is brought into relation with biology and the physical sciences generally; objective study of all natural expressions or products of mind like Language, and all abnormal or morbid phases up to Insanity; comparative study, again objective, of the manners and customs of Human Races as giving evidence of their mental characteristics, also of mind as exhibited by the lower Animals—such are some of the more obvious heads of inquiry which the psychologist must keep in view. No such statement, however, can come near to exhausting the matter of psychology. Whatever place may be claimed for it among the sciences in respect of its method, psychology in respect of its subject must stand for ever apart. Include Mind, as it may possibly be included, in the widest conception of Nature, and it is like one half of the whole facing all the rest. Oppose it, as more commonly it is opposed, to Nature, and again Mind is nothing less than one half of all that exists; nay, in a most serious sense, it extends to all that exists, because that which we call Nature, in all its aspects and all its departments, must have an expression in terms of thought or subjective experience. It is in this view that Psychology may be shown to pass inevitably into Philosophy, but let it suffice here to have merely suggested why, although all objective lines of inquiry bearing more or less directly on mind will in turn be pursued in these pages, the fundamental consideration of mind is and must be subjective. Whoever enters into this position is able, without abandoning the firm ground of the positive sciences, to put himself in relation with the philosophic thought of all time and is raised above the narrowing influences of modern specialism.

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* The recent Royal Commission on Scientific Instruction and the Advancement of Science had no hesitation in limiting the scope of its inquiries to "the Sciences of Organic and Inorganic Nature, including . . . . the Sciences of Number and Magnitude, together with those which depend on Observation and Experiment, but excluding the Mental and Moral Sciences."—(*Third Report*, p. vii.)

Theoretic psychology has its practical application, as a whole, in the balanced training and culture of the individual mind, while it deals separately with functions whose natural play stands greatly in need of regulation. Considering how much attention has been given to psychology in England, it is somewhat remarkable that so little reference has been made to Education, whether in view of the immense practical importance of the subject, or as a means of testing the truth of psychological theory. The more scientific doctrine of mind which, we are apt to boast, has always been sought after in England, has borne little educational fruit, compared with the speculative theories of mind that have grown in rank profusion on German soil. A true psychology ought unquestionably to admit of being turned to the educator's purpose, and in no direction has the new journal a more decided opening for effective work at the present time. To speak, in the same connection, of such subjects as Logic, Æsthetics and Ethics, may seem strange, but there is good reason for so doing.

The existence, in more or less developed form, of the three distinct bodies of doctrine so named, is a signal confirmation of the theoretic distinction of Knowing, Feeling and Willing which has established itself, not without difficulty, in modern psychology, while the doctrines themselves have an obvious relation to the different aspects of mental culture. The psychologist is drawn on almost perforce to consider how the natural action of mind may be controlled and perfected, and it should therefore surprise no one that in a psychological journal a prominent place is given to mental Nomology, as Hamilton used to call it. From a philosophical point of view it is of course needless to justify the consideration of the true, the beautiful and the good in a journal whose subject is Mind.

With reference to general Philosophy or Metaphysic proper, psychology may be viewed as a kind of common ground whereon thinkers of widely different schools may meet, and, if they do not forthwith agree, may at least have their differences plainly formulated, as a first step towards any agreement that is possible. The new journal should thus, while promoting psychological science, help also to compose that secular strife which scientific inquirers as well as popular writers are never weary of representing as the opprobrium of philosophy. Strife, no doubt, is wasteful, and cannot be too quickly allayed; but it is well there should be no mistake, so far as this particular charge against philosophy is concerned. The kind of agreement that is possible in the special branches of physical science, is not possible in the region of general philosophy. How should it be possible, when the conditions of verification are so utterly different? It is almost absurd to think of it even as desirable. Physical science itself, as it becomes general, grows to be contested: neither the word "science" nor the word "physical" has virtue to charm away the possibilities of dissension that generality enfolds. The larger conceptions and principles of physical inquiry are so notoriously under dispute at the present day that it is almost trivial to mention the fact—not wholly trivial, only because it is so apt to be forgotten when the question turns upon the credit of philosophical doctrines. To bring philosophical inquiries, as far as possible, to their psychological base, seems the most that can be done to procure agreement in a sphere of thought where there must always be the widest scope for difference of opinion. If at the same time it is remembered that even in psychology special results may cover or correspond to vast classes of such objective facts and relations as make the staple of the physical sciences, it need not be matter of wonder that philosophical differences are hard to surmount.

Before closing these remarks it may not be amiss to refer to one peculiar feature in the conduct of the journal, as it is meant to be carried out; the more, because publicity is a necessary condition to the effective working of the plan. Books of any importance will be noticed on their first appearance, and a general idea will be given of their contents, without any pretence of critical appreciation. It should thus be possible to supply from quarter to quarter an approximately complete bibliographical record, which shall yet give real information not to be had from a bare list of titles. The farther task of critically examining the works of real importance it is desired to leave, as much as possible, to volunteers. Criticism on important books that is not founded upon leisurely study of them by men who read them naturally in the course of their own work, is worth little or nothing when it is not worth much less than nothing. Genuine readers of works bearing on the subjects covered by the Review are accordingly invited to send in critical notices of their own motion. The obvious objection that a volunteer critic is very likely to waste his pains because another may have anticipated him with a criticism on the same book, will be met by a simple expedient: more than one notice will without any hesitation be printed, if proceeding from competent hands. If two or more men, known to be fit judges, agree in commending or in condemning a book, the judgment will be only the more final. If they differ in their estimate, what more instructive to the general reader than to learn this difference and the grounds of it? The object, it may be said, is gained already by the concurrence of different journals. Hardly: for there are no journals at present that can, except occasionally, offer to their readers the kind of criticism which a special journal like MIND must constantly aim at furnishing. When a book has once had its general contents indicated on its appearance, criticism in a special journal should be directed straight to the new ideas in it with little or no formality of introduction and conclusion. The chances are that criticism of this cast from different pens would bear upon different ideas in the same work, and thus a reader might learn more from two or three short notes than by reading several formal notices that must all go over the same ground because they profess to deal with the whole book. On more than one of the works reviewed in the present number, notes of the kind suggested might well be offered by other critics.

EDITOR.

II.—THE COMPARATIVE PSYCHOLOGY OF MAN.*

WHILE discussing with two members of the Anthropological Institute the work to be undertaken by its psychological section, I made certain suggestions which they requested me to put in writing. When reminded, some months after, of the promise I had made to do this, I failed to recall the particular suggestions referred to; but in the endeavour to remember them, I was led to glance over the whole subject of comparative human psychology. Hence resulted the following paper.

That making a general survey is useful as a preliminary to deliberate study, either of a whole or of any part, scarcely needs showing. Vagueness of thought accompanies the wandering about in a region without known bounds or landmarks. Attention devoted to some portion of a subject, in ignorance of its connection with the rest, leads to untrue conceptions. The whole cannot be rightly conceived without some knowledge of the parts; and no part can be rightly conceived out of relation to the whole.

To map out the comparative psychology of man must also conduce to the more methodic carrying on of inquiries. In this, as in other things, division of labour will facilitate progress; and that there may be division of labour, the work itself must be systematically divided.

We may conveniently separate the entire subject into three main divisions, arranged in the order of increasing speciality.

The first division will treat of the degrees of mental evolution of different human types, generally considered: taking account of both the mass of mental manifestation and the complexity of mental manifestation. This division will include the relations of these characters to physical characters—the bodily mass and structure, and the cerebral mass and structure. It will also include inquiries concerning the time taken in completing mental evolution, and the time during which adult mental power lasts; as well as certain most general traits of mental action, such as the greater or less persistence of emotions and of intellectual processes. The connection between the general mental type and the general social type should also be here dealt with.

In the second division may be conveniently placed apart inquiries concerning the relative mental natures of the sexes in each race. Under it will come such questions as these:—

---

* Read before the Anthropological Institute.

What differences of mental mass and mental complexity, if any, existing between males and females, are common to all races? Do such differences vary in degree, or in kind, or in both? Are there reasons for thinking that they are liable to change by increase or decrease? What relations do they bear in each case to the habits of life, the domestic arrangements, and the social arrangements? This division should also include in its scope the sentiments of the sexes towards one another, considered as varying quantitatively and qualitatively; as well as their respective sentiments towards offspring, similarly varying.

For the third division of inquiries may be reserved the more special mental traits distinguishing different types of men. One class of such specialities results from difference of proportion among faculties possessed in common; and another class results from the presence in some races of faculties that are almost or quite absent from others. Each difference in each of these groups, when established by comparison, has to be studied in connection with the stage of mental evolution reached, and has to be studied in connection with the habits of life and the social development, regarding it as related to these both as cause and consequence.

Such being the outlines of these several divisions, let us now consider in detail the subdivisions contained within each.

I.—Under the head of general mental evolution we may begin with the trait of—

1. *Mental mass.*—Daily experiences show us that human beings differ in volume of mental manifestation. Some there are whose intelligence, high though it may be, produces little impression on those around; while there are some who, when uttering even commonplaces, do it so as to affect listeners in a disproportionate degree. Comparison of two such makes it manifest that, generally, the difference is due to the natural language of the emotions. Behind the intellectual quickness of the one there is not felt any power of character; while the other betrays a momentum capable of bearing down opposition—a potentiality of emotion that has something formidable about it. Obviously the varieties of mankind differ much in respect of this trait. Apart from kind of feeling, they are unlike in amount of feeling. The dominant races overrun the inferior races mainly in virtue of the greater quantity of energy in which this greater mental mass shows itself. Hence a series of inquiries, of which these are some:—(*a*) What is the relation between mental mass and bodily mass? Manifestly, the small races are deficient in it. But it also appears that races

much upon a par in size—as, for instance, an Englishman and a Damara, differ considerably in mental mass. (*b*) What is its relation to mass of brain? and, bearing in mind the general law that in the same species, size of brain increases with size of body (though not in the same proportion), how far can we connect the extra mental mass of the higher races with an extra amount of brain beyond that which is proper to their greater bodily mass? (*c*) What relation, if any, is there between mental mass and the physiological state expressed in vigour of circulation and richness of blood, as severally determined by mode of life and general nutrition? (*d*) What are the relations of this trait to the social state, as predatory or industrial, nomadic or agricultural?

2. *Mental complexity.*—How races differ in respect of the more or less involved structures of their minds, will best be understood on recalling that unlikeness between the juvenile mind and the adult mind among ourselves, which so well typifies the unlikeness between the minds of savage and civilised. In the child we see absorption in special facts. Generalities even of a low order are scarcely recognised; and there is no recognition of high generalities. We see interest in individuals, in personal adventures, in domestic affairs; but no interest in political or social matters. We see vanity about clothes and small achievements; but little sense of justice: witness the forcible appropriation of one another's toys. While there have come into play many of the simpler mental powers, there has not yet been reached that mental complication of mind which results from the addition of powers evolved out of these simpler ones. Kindred differences of complexity exist between the minds of lower and higher races; and comparisons should be made to ascertain their kinds and amounts. Here, too, there may be a subdivision of the inquiries. (*a*) What is the relation between mental complexity and mental mass? Do not the two habitually vary together? (*b*) What is the relation to the social state, as more or less complex?—that is to say, Do not mental complexity and social complexity act and react on each other?

3. *Rate of mental development.*—In conformity with the biological law, that the higher the organisms the longer they take to evolve, members of the inferior human races may be expected to complete their mental evolution sooner than members of the superior races; and we have evidence that they do this. Travellers from all regions comment, now on the great precocity of children among savage and semi-civilised peoples, and now on the early arrest of their mental progress. Though we scarcely need more proofs that this general contrast exists, there remains

to be asked the question, whether it is consistently maintained throughout all orders of races, from the lowest to the highest —whether, say, the Australian differs in this respect from the Hindu, as much as the Hindu does from the European. Of secondary inquiries coming under this sub-head may be named several. (*a*) Is this more rapid evolution and earlier arrest always unequally shown by the two sexes; or, in other words, are there in lower types proportional differences in rate and degree of development, such as higher types show us? (*b*) Is there in many cases, as there appears to be in some cases, a traceable relation between the period of arrest and the period of puberty? (*c*) Is mental decay earlier in proportion as mental evolution is rapid? (*d*) Can we in other respects assert that where the type is low, the entire cycle of mental changes between birth and death—ascending, uniform, descending—comes within a shorter interval?

4. *Relative plasticity.*—Is there any relation between the degree of mental modifiability which remains in adult life, and the character of the mental evolution in respect of mass, complexity, and rapidity? The animal kingdom at large yields us reasons for associating an inferior and more rapidly-completed mental type, with a relatively automatic nature. Lowly organised creatures, guided almost entirely by reflex actions, are in but small degrees changeable by individual experiences. As the nervous structure complicates, its actions become less rigorously confined within pre-established limits; and as we approach the highest creatures, individual experiences take larger and larger shares in moulding the conduct: there is an increasing ability to take in new impressions and to profit by the acquisitions. Inferior and superior human races are contrasted in this respect. Many travellers comment on the unchangeable habits of savages. The semi-civilised nations of the East, past and present, were, or are, characterised by a greater rigidity of custom than characterises the more civilised nations of the West. The histories of the most civilised nations show us that in their earlier times the modifiability of ideas and habits was less than it is at present. And if we contrast classes or individuals around us, we see that the most developed in mind are the most plastic. To inquiries respecting this trait of comparative plasticity, in its relations to precocity and early completion of mental development, may be fitly added inquiries respecting its relations to the social state, which it helps to determine, and which reacts upon it.

5. *Variability.*—To say of a mental nature that its actions are extremely inconstant, and at the same time to say that it is a relatively unchangeable nature, apparently implies a contradiction. When, however, the inconstancy is understood as

referring to the manifestations which follow one another from minute to minute, and the unchangeableness to the average manifestations, extending over long periods, the apparent contradiction disappears ; and it becomes comprehensible that the two traits may, and ordinarily do, co-exist. An infant, quickly weary with each kind of perception, wanting ever a new object, which it soon abandons for something else, and alternating a score times a day between smiles and tears, shows us a very small persistence in each kind of mental action : all its states, intellectual and emotional, are transient. Yet at the same time its mind cannot be easily changed in character. True, it changes spontaneously in due course ; but it long remains incapable of receiving ideas or emotions beyond those of simple orders. The child exhibits less rapid variations, intellectual and emotional, while its educability is greater. Inferior human races show us this combination, great rigidity of general character with great irregularity in its passing manifestations. Speaking broadly, while they resist permanent modification they lack intellectual persistence, and they lack emotional persistence. Of various low types we read that they cannot keep the attention fixed beyond a few minutes on anything requiring thought, even of a simple kind. Similarly with their feelings : these are less enduring than those of civilised men. There are, however, qualifications to be made in this statement ; and comparisons are needed to ascertain how far these qualifications go. The savage shows great persistence in the action of the lower intellectual faculties. He is untiring in minute observation. He is untiring, also, in that kind of perceptive activity which accompanies the making of his weapons and ornaments : often persevering for immense periods in carving stones, &c. Emotionally, too, he shows persistence not only in the motives prompting these small industries, but also in certain of his passions—especially in that of revenge. Hence, in studying the degrees of mental variability shown us in the daily lives of the different races, we must ask how far variability characterises the whole mind, and how far it holds only of parts of the mind.

6. *Impulsiveness.*—This trait is closely allied with the last : unenduring emotions are emotions which sway the conduct now this way and now that, without any consistency. The trait of impulsiveness may, however, be fitly dealt with separately, because it has other implications than mere lack of persistence. Comparisons of the lower human races with the higher, appear generally to show that, along with brevity of the passions, there goes violence. The sudden gusts of feeling which men of inferior types display, are excessive in degree as they are short in duration ; and there is probably a connection between these

two traits: intensity sooner producing exhaustion. Observing that the passions of childhood illustrate this connection, let us turn to certain interesting questions concerning the decrease of impulsiveness which accompanies advance in evolution. The nervous processes of an impulsive being, are less remote from reflex actions than are those of an unimpulsive being. In reflex actions we see a simple stimulus passing suddenly into movement: little or no control being exercised by other parts of the nervous system. As we ascend to higher actions, guided by more and more complicated combinations of stimuli, there is not the same instantaneous discharge in simple motions; but there is a comparatively deliberate and more variable adjustment of compound motions, duly restrained and proportioned. It is thus with the passions and sentiments in the less developed natures and in the more developed natures. Where there is but little emotional complexity, an emotion, when excited by some occurrence, explodes in action before the other emotions have been called into play; and each of these, from time to time, does the like. But the more complex emotional structure is one in which these simpler emotions are so co-ordinated that they do not act independently. Before excitement of any one has had time to cause action, some excitement has been communicated to others—often antagonistic ones—and the conduct becomes modified in adjustment to the combined dictates. Hence results a decreased impulsiveness, and also a greater persistence. The conduct pursued, being prompted by several emotions co-operating in degrees which do not exhaust them, acquires a greater continuity; and while spasmodic force becomes less conspicuous, there is an increase in the total energy. Examining the facts from this point of view, there are sundry questions of interest to be put respecting the different races of men. (*a*) To what other traits than degree of mental evolution is impulsiveness related? Apart from difference in elevation of type, the New-World races seem to be less impulsive than the Old-World races. Is this due to constitutional apathy? Can there be traced (other things equal) a relation between physical vivacity and mental impulsiveness? (*b*) What connection is there between this trait and the social state? Clearly a very explosive nature—such as that of the Bushman—is unfit for social union; and, commonly, social union, when by any means established, checks impulsiveness. (*c*) What respective shares in checking impulsiveness are taken by the feelings which the social state fosters—such as the fear of surrounding individuals, the instinct of sociality, the desire to accumulate property, the sympathetic feelings, the sentiment of justice? These, which require a social environment for their development, all of them involve imaginations of consequences more or less distant; and thus imply checks upon the promptings of the simpler passions. Hence arise the questions —In what order, in what degrees, and in what combinations do they come into play?

7. One further general inquiry of a different kind may be added. What effect is produced on mental nature by mixture of races? There is reason for believing that throughout the animal kingdom, the union of varieties that have become widely divergent is physically injurious; while the union of slightly divergent varieties is physically beneficial. Does the like hold with the mental nature? Some facts seem to show that mixture of human races extremely unlike produces a worthless type of mind—a mind fitted neither for the kind of life led by the higher of the two races, nor for that led by the lower—a mind out of adjustment to all conditions of life. Contrariwise, we find that peoples of the same stock, slightly differentiated by lives carried on in unlike circumstances for many generations, produce by mixture a mental type having certain superiorities. In his work on *The Huguenots*, Mr. Smiles points out how large a number of distinguished men among us have descended from Flemish and French refugees; and M. Alphonse De Candolle, in his *Histoire des Sciences et des Savants depuis deux Siècles*, shows that the descendants of French refugees in Switzerland have produced an unusually great proportion of scientific men. Though, in part, this result may be ascribed to the original natures of such refugees, who must have had that independence which is a chief factor in originality, yet it is probably in part due to mixture of races. For thinking this, we have evidence which is not open to two interpretations. Professor Morley draws attention to the fact that, during seven hundred years of our early history, "the best genius of England sprang up on the line of country in which Celts and Anglo-Saxons came together." In like manner, Mr. Galton, in his *English Men of Science*, shows that in recent days these have mostly come from an inland region, running generally from north to south, which we may reasonably presume contains more mixed blood than do the regions east and west of it. Such a result seems probable *à priori*. Two natures respectively adapted to slightly unlike sets of social conditions, may be expected by their union to produce a nature somewhat more plastic than either—a nature more impressible by the new circumstances of advancing social life, and therefore more likely to originate new ideas and display modified sentiments. The comparative psychology of man may, then, fitly include the mental effects of mixture; and among derivative inquiries we may ask—How far the conquest of race by race has been

instrumental in advancing civilisation by aiding mixture, as well as in other ways?

II.—The second of the three leading divisions named at the outset is less extensive. Still, concerning the relative mental natures of the sexes in each race, questions of much interest and importance may be raised.

1. *Degree of difference between the sexes.*—It is an established fact that, physically considered, the contrast between males and females is not equally great in all types of mankind. The bearded races, for instance, show us a greater unlikeness between the two than do the beardless races. Among South American tribes, men and women have a greater general resemblance in form, &c., than is usual elsewhere. The question, then, suggests itself, Do the mental natures of the sexes differ in a constant or in a variable degree? The difference is unlikely to be a constant one; and, looking for variation, we may ask what is its amount, and under what conditions does it occur?

2. *Difference in mass and in complexity.*—The comparisons between the sexes, of course, admit of subdivisions parallel to those made in the comparisons between the races. Relative mental mass and relative mental complexity have chiefly to be observed. Assuming that the great inequality in the cost of reproduction to the two sexes is the cause of unlikeness in mental mass, as in physical mass, this difference may be studied in connection with reproductive differences presented by the various races, in respect of the ages at which reproduction commences, the period over which it lasts. An allied inquiry may be joined with this; namely, how far the mental development of the two sexes are affected by their relative habits in respect to food and physical exertion? In many of the lower races, the women, treated with great brutality, are, physically, very inferior to the men; excess of labour and defect of nutrition being apparently the combined causes. Is any arrest of mental development simultaneously caused?

3. *Variation of the differences.*—If the unlikeness, physical and mental, of the sexes is not constant, then, supposing all races have diverged from one original stock, it follows that there must have been transmission of accumulated differences to those of the same sex in posterity. If, for instance, the pre-historic type of man was beardless, then the production of a bearded variety implies that within that variety the males continued to transmit an increasing amount of beard to descendants of the same sex. This limitation of heredity by sex, shown us in multitudinous ways throughout the animal kingdom, probably applies to the cerebral structures as much as

to other structures. Hence the question—Do not the mental natures of the sexes in alien types of Man diverge in unlike ways and degrees?

4. *Causes of the differences.*—Is any relation to be traced between this variable difference and the variable parts the sexes play in the business of life? Assuming the cumulative effects of habit on function and structure, as well as the limitation of heredity by sex, it is to be expected that if, in any society, the activities of one sex, generation after generation, differ from those of the other, there will arise sexual adaptations of mind. Some instances in illustration may be named. Among the Africans of Loango and other districts, as also among some of the Indian Hill-tribes, the men and women are strongly contrasted as respectively inert and energetic: the industry of the women having apparently become so natural to them that no coercion is needed. Of course, such facts suggest an extensive series of questions. Limitation of heredity of sex may account both for those sexual differences of mind which distinguish men and women in all races, and for those which distinguish them in each race, or each society. An interesting subordinate inquiry may be, how far such mental differences are inverted in cases where there is inversion of social and domestic relations; as among those Khasi Hill-tribes whose women have so far the upper hand that they turn off their husbands in a summary way if they displease them.

5. *Mental modifiability in the two sexes.*—Along with comparisons of races in respect of mental plasticity may go parallel comparisons of the sexes in each race. Is it true always, as it appears to be generally true, that women are less modifiable than men? The relative conservatism of women—their greater adhesion to established ideas and practices—is manifest in many civilised and semi-civilised societies. Is it so among the uncivilised? A curious instance of greater adhesion to custom by women than by men is given by Dalton, as occurring among the Juangs, one of the lowest wild tribes of Bengal. Until recently the only dress of both sexes was something less than that which the Hebrew legend gives to Adam and Eve. Years ago the men were led to adopt a cloth bandage round the loins, in place of the bunch of leaves; but the women adhere to the aboriginal habit: a conservatism shown where it might have been least expected.

6. *The sexual sentiment.*—Results of value may be looked for from comparisons of races made to determine the amounts and characters of the higher feelings to which the relations of the sexes give rise. The lowest varieties of mankind have but small endowments of these feelings. Among varieties of higher

types, such as the Malayo-Polynesians, these feelings seem considerably developed: the Dyaks, for instance, sometimes display them in great strength. Speaking generally, they appear to become stronger with the advance of civilisation. Several subordinate inquiries may be named. (*a*) How far is development of the sexual sentiment dependent upon intellectual advance —upon growth of imaginative power? (*b*) How far is it related to emotional advance; and especially to evolution of those emotions which originate from sympathy? What are its relations to polyandry and polygyny? (*c*) Does it not tend towards, and is it not fostered by, monogamy? (*d*) What connection has it with maintenance of the family bond, and the consequent better rearing of children?

III.—Under the third head, to which we may now pass, come the more special traits of different races.

1. *Imitativeness.*—One of the characteristics in which the lower types of men show us a smaller departure from reflex action than do the higher types, is their strong tendency to mimic the motions and sounds made by others—an almost involuntary habit which travellers find it difficult to check. This meaningless repetition, which seems to imply that the idea of an observed action cannot be framed in the mind of the observer without tending forthwith to discharge itself in the action conceived (and every ideal action is a nascent form of the consciousness accompanying performance of such action), evidently diverges but little from the automatic; and decrease of it is to be expected along with increase of self-regulating power. This trait of automatic mimicry is evidently allied with that less automatic mimicry which shows itself in greater persistence of customs. For customs adopted by each generation from the last, without thought or inquiry, imply a tendency to imitate which overmasters critical and sceptical tendencies: so maintaining habits for which no reason can be given. The decrease of this irrational mimicry, strongest in the lowest savage and feeblest in the highest of the civilised, should be studied along with the successively higher stages of social life, as being at once an aid and a hindrance to civilisation; an aid in so far as it gives that fixity to the social organisation without which a society cannot survive; a hindrance in so far as it offers resistance to changes of social organisation that have become desirable.

2. *Incuriosity.*—Projecting our own natures into the circumstances of the savage, we imagine ourselves as marvelling greatly on first seeing the products and appliances of civilised life. But we err in supposing that the savage has

feelings such as they would have in his place. Want of rational curiosity respecting these incomprehensible novelties, is a trait remarked of the lower races wherever found; and the partially-civilised races are distinguished from them as exhibiting rational curiosity. The relation of this trait to the intellectual nature, to the emotional nature, and to the social state, should be studied.

3. *Quality of thought.*—Under this vague head may be placed many sets of inquiries, each of them extensive—(*a*) The degree of generality of the ideas; (*b*) the degree of abstractness of the ideas; (*c*) the degree of definiteness of the ideas; (*d*) the degree of coherence of the ideas; (*e*) the extent to which there have been developed such notions as those of *class*, of *cause*, of *uniformity*, of *law*, of *truth*. Many conceptions which have become so familiar to us that we assume them to be the common property of all minds, are no more possessed by the lowest savage than they are by our own children; and comparisons of types should be so made as to elucidate the processes by which such conceptions are reached. The development under each head has to be observed—(*a*) independently in its successive stages; (*b*) in connection with the co-operative intellectual conceptions; (*c*) in connection with the progress of language, of the arts, and of social organisation. Already linguistic phenomena have been used in aid of such inquiries; and more systematic use of them should be made. Not only the number of general words, and the number of abstract words, in a people's vocabulary should be taken as evidence, but also their *degrees* of generality and abstractness; for there are generalities of the first, second, third, &c., orders and abstractions similarly ascending in degree. *Blue* is an abstraction referring to one class of impressions derived from visible objects; *colour* is a higher abstraction referring to many such classes of visual impressions; *property* is a still higher abstraction referring to classes of impressions received not through the eyes alone, but through other sense-organs. If generalities and abstractions were arranged in the order of their extensiveness and in their grades, tests would be obtained which, applied to the vocabularies of the uncivilised, would yield definite evidence of the intellectual stages reached.

4. *Peculiar aptitudes.*—To such specialities of intelligence as mark different degrees of evolution, have to be added the minor ones related to modes of life: the kinds and degrees of faculty which have become organised in adaptation to daily habits—skill in the use of weapons, powers of tracking, quick discrimination of individual objects. And under this head may fitly come inquiries concerning some race-peculiarities of the

æsthetic class, not at present explicable. While the remains from the Dordogne caves show us that their inhabitants, low as we must suppose them to have been, could represent animals, both by drawing and carving, with some degree of fidelity; there are existing races, probably higher in other respects, who seem scarcely capable of recognising pictorial representations. Similarly with the musical faculty. Almost or quite wanting in some inferior races, we find it in other races, not of high grade, developed to an unexpected degree: instance the Negroes, some of whom are so innately musical, that, as I have been told by a missionary among them, the children in native schools, when taught European psalm-tunes, spontaneously sing seconds to them. Whether any causes can be discovered for race-peculiarities of this kind, is a question of interest.

5. *Specialities of emotional nature.*—These are worthy of careful study, as being intimately related to social phenomena—to the possibility of social progress, and to the nature of the social structure. Of those to be chiefly noted there are—(*a*) Gregariousness or sociality—a trait in the strength of which races differ widely: some, as the Mantras, being almost indifferent to social intercourse; others being unable to dispense with it. Obviously the degree of the desire for the presence of fellow-men, affects greatly the formation of social groups, and consequently underlies social progress. (*b*) Intolerance of restraint. Men of some inferior types, as the Mapuché, are ungovernable; while those of other types, no higher in grade, not only submit to restraint, but admire the persons exercising it. These contrasted traits have to be observed in connection with social evolution ; to the early stages of which they are respectively antagonistic and favourable. (*c*) The desire for praise is a trait which, common to all races, high or low, varies considerably in degree. There are quite inferior races, as some of those in the Pacific States, whose members sacrifice without stint to gain the applause which lavish generosity brings ; while, elsewhere, applause is sought with less eagerness. Notice should be taken of the connection between this love of approbation and the social restraints ; since it plays an important part in the maintenance of them. (*d*) The acquisitive propensity. This, too, is a trait the various degrees of which, and the relations of which to the social state, have to be especially noted. The desire for property grows along with the possibility of gratifying it ; and this, extremely small among the lowest men, increases as social development goes on. With the advance from tribal property to family property and individual property, the notion of private right of possession gains definiteness, and the love of acquisition strengthens. Each step towards an orderly social

state, makes larger accumulations possible, and the pleasures achievable by them more sure; while the resulting encouragement to accumulate, leads to increase of capital and further progress. This action and re-action of the sentiment and the social state, should be in every case observed.

6. *The altruistic sentiments.*—Coming last, these are also highest. The evolution of them in the course of civilisation shows us very clearly the reciprocal influences of the social unit and the social organism. On the one hand, there can be no sympathy, nor any of the sentiments which sympathy generates, unless there are fellow-beings around. On the other hand, maintenance of union with fellow-beings depends in part on the presence of sympathy, and the resulting restraints on conduct. Gregariousness or sociality favours the growth of sympathy; increased sympathy conduces to closer sociality and a more stable social state; and so, continuously, each increment of the one makes possible a further increment of the other. Comparisons of the altruistic sentiments resulting from sympathy, as exhibited in different types of men and different social states, may be conveniently arranged under three heads—(*a*) Pity, which should be observed as displayed towards offspring, towards the sick and aged, and towards enemies. (*b*) Generosity (duly discriminated from the love of display) as shown in giving; as shown in the relinquishment of pleasures for the sake of others; as shown by active efforts on others' behalf. The manifestations of this sentiment, too, are to be noted in respect of their range—whether they are limited to relatives; whether they extend only to those of the same society; whether they extend to those of other societies; and they are also to be noted in connection with the degree of providence—whether they result from sudden impulses obeyed without counting the cost, or go along with a clear foresight of the future sacrifices entailed. (*c*) Justice. This most abstract of the altruistic sentiments is to be considered under aspects like those just named, as well as under many other aspects—how far it is shown in regard to the lives of others; how far in regard to their property; how far in regard to their various minor claims. And the comparisons of men in respect of this highest sentiment should, beyond all others, be carried on along with observations on the accompanying social state, which it largely determines—the forms and actions of government; the character of the laws; the relations of classes.

Such, stated as briefly as consists with clearness, are the leading divisions and subdivisions under which the Comparative Psychology of Man may be arranged. In going rapidly over so wide a field, I have doubtless overlooked much that should be included. Doubtless, too, various of the inquiries named will branch out into subordinate inquiries well worth pursuing. Even as it is, however, the programme is extensive enough to occupy numerous investigators who may with advantage take separate divisions.

Though, after occupying themselves with primitive arts and products, anthropologists have devoted their attention mainly to the physical characters of the human races; it must, I think, be admitted that the study of these yields in importance to the study of their psychical characters. The general conclusions to which the first set of inquiries may lead, cannot so much affect our views respecting the highest classes of phenomena as can the general conclusions to which the second set may lead. A true theory of the human mind vitally concerns us; and systematic comparisons of human minds, differing in their kinds and grades, will help us in forming a true theory. Knowledge of the reciprocal relations between the characters of men and the characters of the societies they form, must influence profoundly our ideas of political arrangements. When the interdependence of individual nature and social structure is understood, our conceptions of the changes now taking place, and hereafter to take place, will be rectified. A comprehension of mental development as a process of adaptation to social conditions, which are continually remoulding the mind, and are again remoulded by it, will conduce to a salutary consciousness of the remoter effects produced by institutions upon character; and will check the grave mischiefs which ignorant legislation now causes. Lastly, a right theory of mental evolution as exhibited by humanity at large, giving a key, as it does, to the evolution of the individual mind, must help to rationalise our perverse methods of education; and so to raise intellectual power and moral nature.

HERBERT SPENCER.

III.—PHYSIOLOGICAL PSYCHOLOGY IN GERMANY.

THE recent work of Professor Wundt* may be said to have defined the boundaries of a new department of research in Germany. It collects and puts into systematic form the results of a number of more or less isolated inquiries into such subjects as the functions of the several nervous centres, the precise relations of sensation in respect of quality and quantity to physical stimulation, the physiological distinction between sensation and idea, and the causes of the confusion between the two in many abnormal conditions of the organism. These and other inquiries have as their common aim the determination of the exact physiological conditions of a certain group of mental phenomena. Their common presupposition is that every mental process, from the simple sensation which follows as the direct result of external stimulation up to the most subtle and complex operation of thought, has, as its obverse, a physical process, that conscious activity goes on at every point hand in hand with nervous activity. Wundt has seized this general aim of previous researches, has sought to show the convergence of their methods as well as to fill up hypothetically many of the intervening spaces of the field.

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* *Grundzüge der physiologischen Psychologie, von* WILHELM WUNDT, Leipzig, 1873-4.

The completion, even in rough outline, of this new scientific structure, may be regarded, we think, as an event of the first importance. Its real significance lies in the fact that it is the wresting of the whole field of phenomenal psychology out of the hands of the trained metaphysicians by an order of inquirers who bring no metaphysical assumptions to their new study, who are as free from the almost puerile negative dogmatism of the materialists as from the prepossessions of the transcendental psychologists, who clearly see the phenomenal distinctions between the spiritual and the material, and are content in the temper of true *Naturforscher* to confine their attention to the purely phenomenal aspects of their subject. In order to understand the full import of this movement, we may do well just to glance at the recent course of psychological speculation in Germany.

It is not too much to say that till the labours of the physiologists began, there existed nothing like a scientific conception of psychology in Germany. What went and still goes as psychology among professed philosophers is any kind of attempt to determine the substance of mind with the view of embodying this ideal in an ultimate ontological theory. We find little patience in the observation and classification of mental phenomena, little penetrative insight into the causal relations of these phenomena; on the other hand we see abundant metaphysical ingenuity in building new hypotheses on arbitrarily selected groups of facts.

These dominant features of German psychology might be illustrated by reference to the systems of all the professional writers on the subject from Leibnitz downwards. The method of philosophising common to these thinkers is the reduction of psychology to metaphysic; and the effects of this on the scientific character of psychology are seen most conspicuously in the systems which accord a distinct place to a theory of mind. We refer not to such transcendental constructions as the *Lehre vom subjectiven Geiste* of Hegel, but to such quasi-scientific investigations of the subject as are offered in the system of *Pneumatik* left us by Leibnitz, in the scheme of *Eidologie* unfolded by Herbart, and even in the far more sober system of *Psychologie als Naturwissenschaft,* raised by Beneke. The obstinate persistence of the metaphysical method in this domain cannot better be illustrated than by a reference to this last attempt to found a science of psychology. Herbart had made a step towards a more scientific view of the subject by rejecting the venerable hypothesis of occult mental faculties. It was no inconsiderable reform in psychology to substitute the conception of a mental process for that of a mental faculty; but Herbart, unfortunately, missed the rich fruit of this new idea by postulating a number of conceptual processes—such as mutual resistances and endeavours to blend—of which we have no certain knowledge. Beneke, while professing to follow Herbart's direction,* really re-instated in a modified form the anti-scientific conception of mental faculties. He looked on every mental event or "structure" as the result of two factors, a stimulus (*Reiz*) and an original faculty or force (*Ur-vermögen*). It is true that he gave a special interpretation to these terms, and cordially rejected the old "powers," such as memory, imagination, and will, which he termed "hypostasised class-notions." It is also true that he recognised the possibility of the growth of new mental capabilities. Nevertheless, this theory of *Ur-vermögen,* as real forces constituting the elements of the mind, is distinctly unscientific and metaphysical. In order to transform it into a scientific conception, it would have been necessary to regard mental phenomena as the obverse of material processes; and for this the metaphysicians were unprepared.

The foundations of an inductive and experimental science of mind in Germany had to be laid by another class of workers than the metaphysicians. The materials of the science were ready to hand. The prevailing tendency of the Germans to subjective reflection renders them familiar with the chief operations of thought, emotion, and action. Every cultivated German could think with a certain amount of concentration on such topics as the perception of the external world and the freedom of the will. What was wanted for laying the foundations of the new science was familiarity with strict scientific methods of research, a habit of mind,—the result of severe discipline in other departments of inquiry,—of distinguishing fact from theory, of seeking the most precise definition of the phenomena to be studied, and of demanding the most rigorous proof of any proposition offered in explanation of the facts. These qualifications were possessed in an eminent degree by that line of distinguished physiologists of which Johannes Müller may perhaps be termed the first ancestor.

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* In point of fact he thought he was making a great advance on Herbart, for while the latter had recognised three bases of psychology, metaphysics, mathematics, and internal experience, Beneke admitted only the last.

That physiologists have thus gradually encroached on the region of psychology, is a fact which should excite no wonder. For in a certain sense physiology may be said to include the whole of empirical psychology. If every mental act is a function of some part of the nervous system, then a complete account of this system would imply a complete explanation of mental processes, which are its functions.

Of course, physiological science is even now far from that point at which she could supply from the objective side a full interpretation of all known mental phenomena. The exceedingly subtle actions of volition, for example, still await their physiological explanation—an explanation which, when it arrives, will serve to dispel from the subject a good deal of metaphysical haze. The region in which German physiology has been most successful in elucidating mental processes, is that of the senses. Here it has been possible to employ the objective method with full advantage. The quality and quantity of the physical process to be studied have been accurately defined by means of carefully arranged experiments, and the variations in the subjective sensation accompanying changes in the objective process, have been estimated in the best possible manner. In this way the analysis of sensation has been carried to a much further point than that reached by subjective observation alone. Moreover, both the quality and the quantity of our sensations have been more precisely determined, and new light has been shed even on such *primâ facie* un-physiological subjects as the nature of perception and the genesis of our notions of space. Not only so, but the careful experimental study of the operations of sense has involved a consideration of some of the more intricate mental laws. It has been found that what seem to be the most simple impressions of an adult mind contain an admixture of intellectual and volitional activity; and thus it has happened that *savants* who proposed simply to make an exhaustive study of the senses and their functions, found themselves compelled to discuss the nature and laws of the higher mental operations.

The principal steps in the history of this new branch of research in Germany may be easily indicated.* It received a part of its impetus at first from a metaphysical impulse. Johannes Müller, the founder of this school of workers, thought he could supply a physiological basis for Kant's doctrine of the spontaneity of the subject in perception. His foremost proposition was that the several orders of nervous fibre have their own specific energy, owing to which they do not respond in the same way to a given stimulus, as electrical or mechanical action, but, reacting according to their peculiar nature, produce out of precisely the same mode of stimulation, qualitatively unlike sensations. This theory has been very warmly discussed by later writers, and has proved a powerful stimulus to an exact observation of the nature and action of the senses. Müller sought, moreover, to find a physiological equivalent for Kant's notion of space as a subjective form, and he did so by assuming that the retina has an innate feeling of its own extension. This hypothesis, which seems to imply one of two rather startling assertions, either that the retina is the seat of sensation, or that the mind wherever situated has a direct cognisance of the retina and its arrangement of parts, was the first crude form of the "nativistic" theory of visual perception. It has several times been elaborated into new forms, some of which are sufficiently unlike their prototype. Among the latest exponents of this view, E. Hering may be singled out as distinguished by the thoroughness of his knowledge and the force of his reasonings. To this nativistic theory of visual perception there has been opposed the "empiristic" view, according to which our intuitions of direction and distance have been slowly built up out of more elementary experiences. This theory, while taking Berkeley's doctrine as its starting point, has been worked out with characteristic German independence into new forms. We may name Lotze, Helmholtz and Wundt among those who have done most to reconstruct the derivative hypothesis. The discussion has given a great impetus to experimental research; and whoever has carefully read the literature of the subject, for example, Helmholtz's great work on Physiological Optics, will probably admit that these methods of research only need to be worked to a further point in order to yield ample data for the solution of the question.

We may add that in the present paper Wundt's contribution to the theory of space-perception will not be dwelt on, it being intended, with the permission of the editor, to discuss the several German theories on this subject, together with the facts on which they are based, in another article.

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* For a fuller account of these researches, see the writer's Essay on *Recent German Experiments with Sensation,* in his volume, *Sensation and Intuition.*

While the physiological contribution to mental science in Germany thus originated in part in a desire to support certain metaphysical principles, it soon became independent of any such extraneous motive, and was sustained solely by the scientific impulse to ascertain and to interpret as completely as possible the facts brought under investigation. The fruit of this eminently positive treatment of the phenomena of the senses lies stored in the highly valuable collection of discoveries respecting the quantitative aspects of sensation and the relation of these to the accompanying nervous processes. This department of physiological inquiry has been largely carried on by help of electric stimulation, a mode of experiment introduced by Ritter, improved on by Purkinje and others, greatly elucidated by the celebrated researches of Du Bois Reymond and his followers into the electric phenomena of nerve, and giving promise recently of throwing light not only on the actions of the senses but also on those of the central organs. It is impossible to review in detail the long series of investigations relating to the dimensions of sensation which have been carried out by German physiologists. They date back to a period antecedent to that of Müller, though they have only recently been carried out in a systematic way by a kind of scientific concert. The results thus attained are very abundant and must be considered as a valuable addition to the physiological basis of psychology. They include among other points approximate determinations of the degree or force, and also the duration of stimulation necessary to the least possible sensation, of the changes in a sensation consequent on the prolongation of a given stimulus, and of the precise duration of a sensation after the stimulation has ceased. This quantitative determination of sensation was naturally carried out in the first instance in the department of visual impression. Ehrenberg, Johannes Müller himself, and Plateau may be mentioned among those who first assisted in building up this part of the science of the senses. It is however by the labours of more recent investigators, including Volkmann, E. H. Weber, Fechner, Wundt, and Helmholtz, that the quantitative appreciation of sensation has been mainly accomplished. Weber's researches into the limits of discriminative local sensibility, directed in the first instance to the impressions of the tactile surface, and extended by himself and others, including Helmholtz, Förster, Aubert, to retinal impressions, mark an important step in the progress of this method of study, while the yet more remarkable generalisation on the facts thus collected reached by

Fechner and formulated by him in his famous psycho-physical law, has served to reduce this department of observation to something like a distinct and complete branch of the science of physiological psychology. Fechner's employment of the least recognisable sensation and of the least recognisable difference of sensation as constant units, the same for all orders of impression, must be regarded as a most fruitful extension of the scope of subjective observation by the addition of an objective method acquired in the region of physical research.

One or two other lines of inquiry pursued by these first builders of the edifice of physiological psychology deserve particular mention. It may be readily supposed that in a study of sensation carried on *pari passu* with the observation of nervous action, the question of the ultimate elements of our sensuous impressions would receive further elucidation. By help of the objective method here employed, we are enabled to look back on simple types of feeling which precede and enter as constituents into the seemingly indivisible sensations which subjective observation reaches as its ultimate elements. This extended analysis of sensation has led to the inquiry how far all the strongly marked orders of impression, the feelings of sound, light, &c., contain some common elementary basis, and thus the question of the specific energy of the different orders of nerve has acquired a new significance. Finally, attention may be called to the fruitful employment of objective experiment by these physiologists with a view to determine the proportion of immediate impression and of derivative inference in the simple perceptions of the senses. This line of inquiry, which is of supreme value for determining the precise operation of the laws of intellectual action, has been mainly directed to the subject of space-perceptions, that is to say, to the modes of visual apprehension of direction, distance, magnitude, &c. At the same time the experimental study of the illusions of the senses has helped to elucidate the growth of objective perception as a whole, showing under what conditions subjective feeling passes into objective intuition, and what are the elements which co-operate in the formation of our clear and stable conceptions of single and persistent objects.

With such genuine work already done, and such positive results already established, Wundt has set himself to the important supplementary task of bringing together the several lines of inquiry into one scheme and co-ordinating them as parts of one science. It is worth noting that he names this new branch physiological psychology, and not mental physiology, an expression adopted by some English writers for a similar field of research. Wundt's phrase seems to lay stress on the fact that a certain portion of the science of mind is to be built up by an extension of the proper methods of physiological inquiry. It marks off that region of mental facts and laws which requires for its complete illumination the co-operation of physiological observation and experiment.

It will be quite impossible to give in a single article a very full account of the varied and closely packed contents of Professor Wundt's treatise. We must be content to indicate very briefly the main divisions of the author's exposition, and after this to enter more fully into one or two of the most valuable among his original contributions to the science he seeks to define.

The first section of the work is devoted to the nervous system and its functions. The latest results of anatomical research respecting the nature of the nervous elements, the paths of the conducting fibres in the central regions, and the distribution of the masses of grey matter, are ably stated, and light is thrown on the precise relations of the several parts of the nervous centres by a very full account of their morphological development. The author is no less full in his account of the functions of the central masses, making good use of the latest experiments, yet always maintaining a wise caution in drawing conclusions. As an example of this scientific moderation we may quote the remark, greatly emphasised, that the precise localisation of the central functions is rendered exceedingly difficult by the existence in the nervous substance of so large a capability of vicarious or substitutive work, which circumstance makes the conclusions of vivisectional experiment as well as of pathological observation almost nugatory.

Passing by a chapter on the physiological mechanics of the nervous system which contains a series of more or less hypothetical reasonings of great ingenuity, and worthy to be compared with Mr. Spencer's speculations in the same domain, we come to the second section of Professor Wundt's work, that which treats of the sensations. This part of the treatise is full of interest from beginning to end. To sensation are assigned three properties, intensity, quality and emotional tone *(Gefühlston)*. The duration and extensive magnitude of a sensation are not looked on as elementary and original properties. A chapter on the intensity of sensation gives us a clear summary of the experiments of Weber and Fechner, and a statement of the psycho-physical law laid down by the latter. Wundt makes a valuable addition to Fechner's method in supplementing the conception of a "threshold" (the point at which stimulation results in a noticeable feeling) by that of a maximum "height," namely, the point at which increase of external stimulus ceases to be followed by noticeable increase of sensation. With each of these values Wundt connects a distinct mental quality. Sensibility to stimulation is estimated by the numerical value of the threshold, varying inversely with its magnitude. Receptivity for stimuli, on the other hand, corresponds to the position of the maximum height, varying directly with the numerical value of the same. Thus a person in whose case the threshold of a given order of sensibility was very low and the height correspondingly great would be said to possess both great sensibility and a high degree of receptivity for impressions. Wundt, rightly as we think, finds the full psychological significance of Fechner's law in the fact that in comparing feelings, whether as to quantity or as to quality, we have in general not an absolute but only a relative measure. The magnitude of any sensation is necessarily appreciated in relation to the antecedent feeling from which it is a transition.

A chapter on the quality of sensations states in a very clear and succinct manner the latest knowledge representing the anatomical and physiological conditions of the several orders of sensation. Wundt here controverts very fully Müller's doctrine of specific energy, contending that the qualitative differences of the visual, auditory, olfactory, and gustatory sensations depend not on any fundamental peculiarities of the respective groups of nervous fibres, but exclusively on the peculiar terminal apparatus attached to these, that is to say the peripheral expansions of the fibres into the rods and cones of the retina, the organ of Corti in the cochlea, and so on. This question of specific energy, to which Wundt devotes considerable space, will receive a fuller investigation further on in the article. The author seeks to determine precisely the mutual relations of the senses, with reference both to the nature of their stimuli and to the characteristic qualities of the feelings themselves. Thus it is well shown that sight, though it is to be ranked with hearing in the fineness and stability of its discrimination and classification of sensation, resembles the senses of smell and taste in so far as it lacks that power of responding differently to the slightest difference of the external stimulus which belongs to the sense of hearing: and this affinity is supposed to be connected with the fact that in hearing as in touch the mechanical movement of the stimulus is transported *immediately* to the terminal structure of the nervous fibre, whereas in sight, as also in the chemical senses, the movement of the stimulus in its transference to the nervous extremity is transformed into some other form of movement. Wundt considers it to be a legitimate supposition that in sight, as well as in smell and taste, the mechanical process passes into a chemical one. The phenomena of the two higher senses are discussed with great fulness, and the views of others, more especially those of Helmholtz, are subjected to a painstaking criticism.

Wundt completes his account of the sensations by devoting a chapter to the nature and conditions of the "sensuous feelings" *(sinnliche Gefühle)*, that is to say the several emotional shades of sensation, including pleasure and pain, together with certain effects more or less analogous to these as the feelings of the restful, the exciting, and of the cheerful and the gloomy. These subtle shades of feeling which accompany the sensations of the ear and the eye and enter so prominently into æsthetic impressions are defined with considerable ingenuity, even though one has to admit that the writer is here treading on a somewhat slippery ground, for which the strict methods of physiological science are scarcely fitted. With respect to our feelings of pleasure and pain, an ingenious though rather forced attempt is made to demonstrate a uniform relation of emotional quality to intensity of sensation in the case of every sense. Wundt conceives that with increase of stimulation there is a gradual rise through degrees of the pleasurable to a point of indifference, beyond which there is a rising scale of the painful. The case of sensations which appear to be painful even in their feeblest degrees, for example, certain well-known sensations of smell and taste, is disposed of by the supposition that in these instances the point of indifference is scarcely higher than the threshold of sensation, so that the scale of the pleasurable is contracted within such narrow limits as to be unrecognisable. That is to say, Wundt conceives that the points of maximum pleasure, indifference, &c., have very different heights in different classes of sensation.

The next section on "*Vorstellungen*" (*i.e.*, Presentations and Representations) brings us into a region of physical phenomena where it is much less easy to apply the exact and certain methods of physiological science. Still the author succeeds in throwing a good deal of new light on this subject by making use of the most recent objective experiments. The whole question of the nature and origin of our ideas of space, which occupies a considerable part of this section, we hope, as we have said, to deal with in another article. Suffice it for the present to say, that Wundt distinctly connects himself with the "empiristic" party, giving great prominence to the feelings of innervation (which is but another name for Professor Bain's feelings of expended energy), as a main factor in the synthesis by which our space-intuitions are built up. The author enters too very fully into the relations of our musical system, and discusses in a very suggestive way the subjects of tone-relationship, key, musical rhythm, &c.

A chapter of this section which deals with the representations of the imagination shows a wide acquaintance with the facts of hallucinations, and in the psychological use which it makes of the phenomena of mental pathology may be compared with M. Taine's treatment of this subject in his interesting treatise *On Intelligence.* The physiological basis of hallucination is reasonably supposed to be a more energetic central impulse than that of normal fancy and of memory, which impulse reaches the peripheral regions of the senses, and so approximates to the nervous process of perception. Wundt has also some valuable suggestions for explaining many of the seemingly arbitrary associations which present themselves in dreams. In another chapter on complex representations, he attempts to trace the psychological genesis of abstract ideas, and to assign their physiological correlatives, and is naturally led to criticise Kant's doctrine of subjective forms, both of intuition and of the understanding.

The following section headed "Consciousness and the reciprocal action of Presentations" constitutes perhaps the most stimulating reading in the two volumes. The whole subject of the nature and limits of distinct consciousness, including its physiological conditions, is worked out with much originality, though the author here as in some other places betrays a rather dangerous tendency to wander into the unscientific bypaths of metaphysical speculation. The precise nature and the physiological mechanism of voluntary Attention receive a great deal of new light from a group of experiments of the highest interest, of which it may not be too much to say, that they will be new discoveries to nearly every psychological student in this country. Into this part of Professor Wundt's work we shall have to look rather closely presently. The discussion of attention in its operation on intellectual states is followed by a chapter on emotional operations *(Gemüths-bewegungen)* which will be curious to English readers as following in the wake of the other German psychologists in their treatment of this subject. Thus, for example, the old distinction between the feelings and the passions *(Affecte)* is retained, and the impulses of desire and aversion are treated as forms of emotional agitation. The most original feature in this chapter is an attempt to deduce some of the characteristic effects of passion from the overpowering action of emotional excitement on attention. To this point we shall return when expounding the author's theory of attention.

The last section of the work is devoted to an exposition of the several orders of bodily movement, including those of emotional expression. Here the subject of volition and freedom naturally comes in for discussion. The author finds it easy to refute the notion that motives, regarded as invariable quantities, are the whole cause of action, and lays great stress on the natural basis of individual temperament and *character* as an important factor in volition. He finds the true relation of voluntary to reflex movements to be not that the latter fall under the category of causality which the former dispense with, but that while the latter have only an external and physiological determination, the former have both a physiological and a psychological. But is this last an essential step in the process? Here Wundt distinctly meets the supposition of automatism which, oddly enough, is just now talked about in this country as though it were a quite new hypothesis.

In treating the subject of emotional expression, Wundt finds occasion to offer some valuable criticisms on the theory of Darwin. Wundt himself reduces the laws of expression to three principles, namely, those of the direct change of innervation, which answers to Darwin's third principle, and is defined as including the immediate reflex effect (*Rückwirkung*) of the strong emotion on the central parts of motor innervation, the association of analogous sensations, and the relation of movement to the conception of the senses, as illustrated in all mimic gestures, &c. We agree with Wundt in rejecting Darwin's principle of contrast, but we fail to find in this new attempt to define the principles of emotional expression an exhaustive treatment of the subject.

In this rapid survey of the contents of Professor Wundt's two volumes, we have been able, we trust, to show how full and varied is the interest which it offers to the psychological student. Even where the writer fails to exhaust a topic and to supply an adequate explanation of a problem, he renders a valuable service by presenting the subject under some fresh and striking phase, and, in not a few instances, by raising a new problem for future investigators. When to this we add that many of the discussions are supplemented by clear and often ingenious criticisms on preceding theories, more especially the doctrines of the two great leaders of pyschology in Germany, Kant and Herbart, the reader will understand how valuable a treatise is here presented to the student of mind. We will now seek to illustrate still further the importance of Wundt's work and of that department of German research with which it is connected, by entering more fully into two of the most original passages of the book. The first of these is the author's peculiar treatment of the principle of the specific energy of the nervous structures; the second is his fresh and striking account of the processes of attention on their mental and physical side.

The theory of the specific energy of the nerves was, as we have remarked, first built up by J. Müller, who thought by means of this idea to supply a physiological basis for Kant's doctrine respecting the subjective conditions of knowledge. The facts on which it reposed were the following. First of all the several orders of sense-nerve have stimuli peculiar to themselves which do not act on the other orders. Thus the optic nerve has ether-vibrations as its proper stimulus. Secondly, every nerve of sensation reacts on the stimuli common to the several orders of nerves (mechanical and electric agencies) only in the form peculiar to itself ("specific" form). But, in fact, as Wundt points out, the first of these propositions does not hold for the most extended class of nerves, those of the skin, since these lack a special stimulus, and are only acted on by a common mode of stimulation (mechanical action).

With further knowledge respecting the nervous structures, Müller's doctrine of specific energy had to be modified. The form which this theory now commonly took was that the qualitative differences among our sensations depend not so much (if at all) on specific differences in the conducting fibres as on specific peculiarities in the central terminations, namely the cerebral ganglionic cells. The nervous fibres were now spoken of as like electric wires which produced the most various results according to the different apparatus attached to them.

Against this form of the theory Wundt directs his argument, contending that the various elements of the centres no less than the connecting fibres are "functionally indifferent," being able, *per se*, to react just as well in one way as in another, and that the qualitative differences in our sensations depend exclusively on the peculiar forms of the processes set up in the fibres. These forms are mainly the result of the peculiar terminal organs attached to the peripheral extremities of the fibres, such as the rods and cones of the retina, the organ of Corti in the cochlea, &c. No greater differences of structure are discoverable in the central elements than in the peripheral nerves. The connecting fibres are indistinguishable in structure, and as to the ganglionic cells their differences refer simply to magnitude, form, and the mode of origin of their processes. The phenomena of vicarious action, by which one part of the central tissues does duty when another part is incapacitated, and which so frequently occur in pathological observation and in physiological experiment, seem to indicate the fundamental similarity of the central structures as to functional capacity.

Wundt holds, then, that no nervous element, whether fibre or cell, has for its specific function the production of one order of feeling, but that a given variety of feeling is correlated with a definite variety of neural process, which process might as well take place in one fibre (or cell) as in another. The reason why one species of feeling is commonly produced by one set of fibres and cells, is that the form of process appropriate to this feeling is customarily carried out along these particular lines, and this is owing to the peculiarity of the various peripheral endings. Thus the reason why the excitation of a certain group of sensory cells is accompanied with a sensation of sound while that of another group is accompanied by a sensation of light, is to be looked for not in any specific differences of these cells or their connected fibres, but solely in the difference of form in the two series of molecular movements transmitted to the two groups.

The greatest difficulties in the way of the hypothesis of specific energy are to be found, says Wundt, in dealing with the qualitative differences of feeling among the sensations of the same sense. He enters very fully into the question whether the several sub-varieties of the sensations of colour and of tone are dependent on specifically different sets of nervous fibres in the two organs concerned, or whether they are connected with different forms of molecular movement in the same fibres. It is known that Helmholtz, reviving a hypothesis of Thomas Young, supposes that in the retina there are three sets of optic fibres corresponding to three classes of elementary sensations, —namely, those of red, green, and violet, or blue. Again he formerly conceived that the fibres of Corti, which constitute one of the terminal structures of the auditory nerve, are a kind of key-board, each filament being set in motion only by series of vibrations which have an approximately equal rapidity, and so subserving exclusively sensations of tone of nearly the same pitch; and he still supposes that the fine gradations of pitch which the ear is able to distinguish depend on a simultaneous excitation of contiguous fibres in different degrees. Wundt rejects both of these hypotheses. With respect to the eye, he urges that anatomy offers no solid basis for three unlike classes of optic fibre. He also lays stress on the fact that the eye is unable to analyse sensations of colour into their supposed elements. But his main objection is based on the fact that the smallest visible point of light is never perceived as a particular colour. Hence, he argues, even in seeing the *minimum visibile* the three hypothetical sets of fibres must co-operate. But this seems to be irreconcilable with the known diameter of the rods, each of which is supposed to be continuous with a primitive fibril. The difficulties with respect to the ear are, Wundt thinks, still greater. He maintains, in opposition to Helmholtz, that a simultaneous excitation of two adjacent fibres would result not in a single intermediate tone, but in the two tones answering to the fibres, and that therefore, since our sensations of tone constitute a *continuum*, the hypothesis of definite pitch-fibres would require an infinite number of nervous threads.[*] Wundt contends further that to postulate differences of fibre for qualitative differences among the sensations of the remaining senses, as taste and smell, is distinctly opposed to the teachings of anatomical science. We would direct the reader to Wundt's elaborate arguments on the whole subject, which are too long to be given here in detail. It is obvious that if Wundt's interpretation of the facts in this instance is correct,—and we confess that the cumulative effect of his arguments is very considerable,—we have proof positive that within certain limits at least a variety of stimuli acting on the same nervous elements produces qualitatively distinct sensations. And this is a powerful argument for Wundt's whole theory of the nervous conditions of quality of feeling.

But how, it will be asked, is Wundt's doctrine that quality of feeling depends solely on form of stimulation to be reconciled with the fact that definite groups of fibre, *e. g.* those of the retina, respond only in one way, whatever be the stimulus acting on them, and with the further fact that after the peripheral terminations of the fibres are removed, as in the case of the loss of the two eyes, the stimulation of the truncated nerve is always followed by the mode of sensation peculiar to it in its normal condition ? Wundt seeks to get out of this difficulty by postulating an "extraordinary capacity for self-adaptation to stimuli" (p. 351) in the nervous substance. The optic fibre, after having been acted on in innumerable instances by the stimulus of light, has its molecular arrangements so adapted to this particular variety of stimulation that it cannot be acted on by any form of stimulus, at any point in its course, except in this one mode. Wundt thinks this view of the matter is supported by the fact that the function of an organ of sense must be sustained through its appropriate external stimulus for a certain period, if the form of feeling peculiar to the organ is to survive the loss of the organ. Thus it is a familiar observation that those born blind and deaf lack absolutely the sensations of light and sound, whereas those who have become blind and deaf retain their sensations in the form of dreams, recollections, etc., for many years.

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[*] It is rather odd that Wundt does not call attention to the fact that Helmholtz's supposition of certain fine differences in sensation of tone depending on varying proportions of activity in the same two fibres is *pro tanto* an admission of Wundt's point.

It would thus appear that Wundt's theory is not in reality so very different from the older doctrine which it seeks to supplant. He admits in effect that in the present stage of organic development the nervous fibres have something indistinguishable from a specific function, since they can only respond to stimuli in one particular way. Not only so. Difference of function will be followed, sooner or later, by difference of structure, and it appears to follow from Wundt's theory that the optic fibres and their connected cells, for example, must have become structurally unlike the other classes of sensory fibres and cells, though anatomical observation has not as yet succeeded in detecting any characteristic differences.

Wundt claims for his theory of nervous action the advantage of being the "more conceivable psychologically."

> "We can," he says, "easily represent to ourselves that our consciousness is qualitatively determined through the nature of the processes taking place in the organs which sustain it; but it is difficult for us to conceive how this qualitative existence is to become changeable merely with the *local* differences of those processes."—(pp. 353, 4.)

This consideration seems to us to be a little forced, since the supporters of the doctrine of specific energy have referred the peculiarities of function not to mere local arrangement, but to undiscovered peculiarities of structure in the nervous elements themselves, whether fibres or cells. On the other hand, it may well be contended that, in distinguishing two perfectly similar impressions, *e.g.* two points of light, the only physiological basis for such distinction is the local separation (though not the local *arrangement*) of the elements concerned. All that is required for "psychological conceivability" is that to difference of feeling some difference of neural process should correspond; and this requirement is equally satisfied, whether two like processes take place in different elements, or two unlike processes in one and the same element.

In concluding this account of Wundt's theory of nervous action, we would remark that its principal significance lies in its bearing on the hypothesis of evolution. It distinctly points to a gradual differentiation of nervous tissues having unlike functions. Wundt's merit lies in the fact that he has sought with considerable success to transform the old theory of specific energy, so as to harmonise it with the latest biological conceptions.

The subject of specific energy, on which we have just dwelt, is mainly a physiological one; we will now pass to Wundt's treatment of a more properly psychological subject,—namely, the nature and laws of Attention.

Wundt begins his discussion of attention by a provisional definition of consciousness, with which we need not here concern ourselves. He distinctly rejects the idea of "unconscious mental states" awaiting the process of reproduction. On the other hand, he draws a sharp line between clear and obscure consciousness, recognising varying degrees of each both in one and the same mind, and also in the scale of animal intelligence. The circle of distinct consciousness is determined by the process called attention. Wundt draws an analogy between this region of attention and the field of distinct perception in vision, and makes use of the terms "field of view" and "point of view" to illustrate the distinction between all the presentations at a given moment and that part of them to which attention is directed.

The entrance of a presentation into the internal field of view is termed a Perception; its entrance into the point of view, an Apperception. The analogy between the inner and the outer point of view lies in the fact that each moves successively over the different parts of the field of view. On the other hand, the inner point differs from the outer in the property of alternately expanding and contracting (its degree of illumination varying inversely), so that, strictly speaking, it is not a point, but a narrowly circumscribed though variable surface. The narrower and brighter this inner "point," the greater the obscurity of the remaining field. This is well illustrated with respect to objective attention, in the effects of a momentary visual impression by electric illumination, which show further, what might be expected, that the extent of this point of distinct consciousness increases with increased duration or with frequent repetition of the impression.

The influences which lead attention in this or that direction are either external or internal. By the former Wundt understands strength of impression, &c. One condition of recognising a particular element in a complex impression is that this element should have been experienced apart shortly before. In this way we can "pick out" in a composite mass of tone notes which we have just heard separately. By internal conditions Wundt means the influence of memory and anticipation in recognising impressions. Thus in examining a fresh mineral specimen, which, as we conjecture, is of a particular variety, we form a distinct image of some remembered specimen, and by help of this recognise the specimen now before us. Subjective observation shows that wherever attention comes into play, this kind of activity is involved.

Attention is known to be accompanied with a feeling of tension either in the organ of sense engaged, or, as in the case of voluntarily controlled reminiscence, in the head. In both cases the feeling results from the innervation of the voluntary muscles, which is accompanied by an actual tension of the muscles, and in consequence of this, through altered pressures on the skin, by peculiar feelings of touch. Further, when external impressions are anticipated, the feeling of strain in attention is found to depend on the strength of the impressions.

These phenomena show that attention accommodates itself to the particular impression of the moment. The agitating effect of surprise is due to the fact that attention has not accommodated itself at the moment in which the impression is received. This accommodation is of a two-fold kind, having reference both to the quality and to the intensity of the stimuli.

And what, it may be asked, is the mechanism of this process of apperception? When attention is awakened, we must, says Wundt, imagine the following order of events :—

> "The first impulse follows in every case either through an external (physiological) or through an internal (psychical) stimulation. Such a stimulation has as its immediate consequence a presentation, whether an image of intuition or one of imagination; and this in the first instance lies outside the internal 'point of view.' Every sensory stimulation, moreover, is at the same time transmitted into the central regions of voluntary innervation, from which, as we conceive, it is capable of being conveyed further in one of two ways, either first of all back again to the sensory domain, whereby the conception is strengthened, or secondly to the domain of the voluntary muscles, whereby those muscular tensions arise which help to form the feeling of attention, and which on their side react on attention, strengthening it, according to the law that associated feelings support one another. In the predominant reaction on the sensory tracts, from which the process originally set out, consists essentially the difference between attention and voluntary movement. In the case of the latter the central stimulation is mainly directed to the muscles, which during the processes of attention are only drawn into a subordinate co-movement. Yet both processes are of course connected in many different ways, since the voluntary movements throughout shape themselves according to the presentation which occupies the point of view of consciousness."—(p. 723.)

Wundt appeals in confirmation of this theory respecting the reaction of the tracts of motor innervation on the sensory domain to the common fact that by sheer force of will, we can call up feelings scarcely distinguishable from vivid impressions.* His main argument for this theory, however, is derived from a curious series of experiments, to the consideration of which we will now turn.

These experiments aim at determining the duration of the processes involved in recognising a momentary external impression, and in recording this recognition by a simple voluntary movement, and they aim further at discovering what variations in this duration are brought about by variations in the impression and its attendant circumstances. They are of an extremely curious and interesting character, and have proved in the hands of Wundt fruitful of psychological interpretation.

The several steps of the process here studied are thus marked off by Wundt: (1) the transition from the organ of sense to the brain; (2) the entrance into the field of view of consciousness or perception; (3) the entrance into the point of view of attention or apperception; (4) the action of the will in giving the necessary impetus to the motor nerves; and (5) the transmission of this motor excitation to the muscles. The first and last of these stages are purely physiological. As to the remaining three processes, that of perception may reasonably be supposed to be simultaneous with the excitation of the sensory regions, so that its duration is included in that of the process of sensory conduction. If we speak of a perceptional period, we can only mean the time required for the movements transmitted to the sensory centres to produce the necessary excitation there. Similarly, the volitional period (No. 4) must be looked upon as psycho-physical, it being highly improbable that the action of the will is a separate action occupying a distinct time. There remains the apperceptional period, which is also psycho-physical, since we can speak of it either as the time required for the transformation of a perception into an apperception, or as the interval needed for the transition of movement from the sensorium to the cortical portion of the cerebrum. The whole period thus divided, Wundt, following the usage of astronomers, terms the physiological time. Since in many cases we cannot separate the apperceptional and the volitional periods, we may speak of them as one under the term reactional period. In this way we shall have four steps in the process, two purely physiological, the first and the last, and two psychological or psycho-physical, those of perception and reaction. There is every reason to believe that the two latter occupy a much longer time than the two former. Hence when the whole physiological time undergoes considerable alterations, we must refer it to changes in the duration of these central processes. The experiments by which the varying values of the physiological time have been determined were originated by Bessel in his investigations into the personal equation in astronomical observation. They have since been further developed by several *savants* in the interests of physiological science, including Hirsch, Donders, De Jaager, and in a special manner by Exner. The ingeniously constructed apparatus (chronoscopes) by which these observations have been made are fully described by Wundt in an appendix. Here it is sufficient to say that by help of electric currents they give a wonderfully precise record both of the fraction of a second, at which the impression of light or sound takes place, and of the interval between this and the completion of the act of manual registration by which the impression is recorded.

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* The writer of this article may be allowed, perhaps, to remark that without any knowledge of Wundt's speculations on this subject, he himself suggested that the phenomena of voluntarily awakened subjective sensations distinctly point to a reaction of the voluntary process on the sensory tracts. See *Sensation and Intuition*, pp. 63, 64.

The experiments to be considered fall into three series: (1) those which investigate the physiological time under the simplest conditions, that is, when the observer (who records his impression) is expecting an impression of a certain quality and strength, but is uncertain as to the precise moment of its arrival; (2) those in which a change of the physiological time is effected by the addition of the favourable circumstance that the exact time of the impression is known beforehand; and (3) those in which the physiological time is modified by the introduction of some unfavourable circumstance, as for example, that the nature of the impression is unknown, or that the kind of movement to be carried out in the act of registration is made to depend on the character of the impression, and cannot therefore be prepared for in the same manner.

We cannot attempt to give more than some of the most interesting results of these experiments. Thus, for example, Wundt found that under the conditions imposed in the first kind of experiment, the duration of the perceptional and apperceptional processes is a constant quantity for all orders of sensation *at the threshold of stimulation*, the whole time occupied here being of course considerably longer than that required in the case of more powerful stimulation. Further, he found that when considerable changes are made in the force of the stimulus the physiological time decreases with the increase of this force, but that when very slight changes were introduced, this rule did not hold. The author concludes therefore, that within these narrow limits the effect of increase of stimulation in shortening the whole process is evanescent as compared with the effect of the varying influences of the condition of attention at the moment. He argues too, that the increase of rapidity with increase of stimulus, must be referred mainly, though not exclusively, to the psycho-physical stages of the process.

In the second series of observations in which the time of the impression is pre-announced by a signal, Wundt found that with repetition of the experiments under precisely the same conditions the physiological time decreases till it reaches an infinitesimal quantity, or vanishes altogether. That is to say, the act of registration perfectly synchronises with the application of the sensational stimulus. Wundt accounts for these rather startling results by the supposition of a "preparatory strain (*Spannung*) of attention." Where the physiological time becomes very small we may infer that the observer's attention has so well accommodated itself that the apperceptional period vanishes and apperception and volitional excitation become co-instantaneous with perception. Where the physiological time reaches zero, Wundt imagines that the observer is involuntarily seeking to make the act of registration exactly synchronise with the arrival of the impression, and in doing so is necessarily guided by a feeling for the perfect contemporaneousness of the impression to be observed and the feelings of innervation and touch which accompany and announce, so to speak, the act of registration.

Suddenness of impression increases the physiological time very considerably, probably through the retardation of the reactional processes which cannot now be prepared. In the case of a faint, sudden, and wholly unexpected sound, the physiological time reached the great magnitude of half a second. If instead of rendering the impression unforeseeable, the procedure is complicated by leaving the act of registration unknown beforehand, the physiological time is similarly lengthened. This fact points distinctly to the existence of a *volitional* period. The length of this period moreover is found to depend on "the physiological connections in which the central sensory regions stand to the reacting motor apparatus." These connections will obviously be determined in part by the external order of impressions, as is illustrated in an experiment of Donders, which shows that visual signs are less closely associated with vocal action than are auditory signs.

We can only just glance at some of the more complicated experiments here enumerated by the author. It is found that when the impression to be recorded is accompanied by an interfering or distracting side-impression, whether continuous or momentary, the physiological period is lengthened. The disturbance of such a side-impression moreover is greater when this is heterogeneous to, than when it is homogeneous with, the main impression. Thus a sound distracts the mind from the observation of a light-impression with a greater force than another visual impression would do. The physiological reason of this difference is too obvious to require naming. In the case of momentary distracting impressions occurring immediately before the impression to be registered, it is found that within certain limits the actual order of the impressions may be misapprehended, so that the anticipated impression is observed as co-existent with, or even as prior to, the disturbing element which it in reality succeeds. The fact that in watching a bleeding operation a person sees the blood spurting before the insertion of the lancet is a familiar example of this curious fact. Other interesting results follow when the distracting impression is made to succeed the main impression by a very small interval. If the interval be less than a certain magnitude, and the disturbing impression be of a certain strength, the main impression is extinguished, so to speak. The apperceptional energies are called off by the second impression before they have had time to form a distinct intuition of the first.

It is proved by these experiments, says Wundt, that the precise point of time at which an impression is apperceived depends in a very curious way on the amount of preparatory self-accommodation which the attention has undergone. If a clear and vivid image of the impression be formed beforehand, and if the interval between the revival of this image and the recognition of the actual impression be sufficiently small, then the image and the impression are no longer distinguished, and the instant at which the former recurs is taken for the moment of the reception of the latter.

It is also established by these experiments that attention does not in most cases possess the power of grasping two impressions at the same instant. Where two impressions are simultaneously apperceived, it is because they are such as can be brought under one complex impression as parts of a whole. Further, the activities of attention require a certain interval of time in order to pass from one impression to another. Wundt says that two impressions which owing to the after-effect of the first are perfectly continuous are nevertheless perceived as two distinct impressions. In this way, he argues, the laws of attention affix a certain discontinuity or discreteness to the flow of our impressions and ideas.

The most comprehensive and important conclusion which Wundt draws from these experiments is that the operations of apperception and volitional reaction are "one connected process," the physiological seat of which is the domain of central motor innervation. Both apperception and the impulse to voluntary movement "are only different forms of volitional excitation," which has its rise in the anterior regions of the cortical substance. Thus these anterior regions are in a double sense the highest, since they not only subserve the regulation of all the most complicated actions, but also assist in the control of the sensory regions themselves.

The author seeks, as we have before mentioned, to apply this conception of attention to the principal phenomena of violent emotion. He thinks the simplest type of an emotional "*Affect*" is given in the action of a sudden impression. A similar result follows when the impression is so powerful as speedily to exhaust the activities of attention. This is illustrated in the case of the asthenic or prostrating emotions. "Passion streams over and finds vent for itself in energetic movements, in those moments in which apperception commands the impression; it acts in a paralysing manner when either the impression suddenly overpowers consciousness, or when consciousness is exhausted by long conflict with the passion." (p. 805.) Wundt thus refers the bodily movements which accompany strong passion to the energetic excitations of the central motor tracts which form the organ of apperception and voluntary movement, and the wearing effect of certain orders of passion, as terror, to an exhaustion of the energies of these motor tracts.

We cannot say we think this attempt to reduce the bodily effects of emotion to mediate effects, namely those which are due to the action of impressions on attention, to be successful. It seems to be contradicted by the fact that the most energetic emotional movements take place in the absence of everything like a consciousness of an exercise of attention, and overlooks the psychological fact, that emotion, as something distinct both from sensuous impression and from volitional impulse, is a species of bodily excitement which shows itself conspicuously in the muscular activities, but which betrays its presence in heightened sensibility quite as much as in increased motor activity.

But passing by this particular application of Wundt's theory of attention, we can confidently say that it constitutes a very important advance in our knowledge of the real processes of volition, and helps us to understand by what mechanism the mind consciously turns its attention to an internal idea and through a voluntary concentration of its forces, facilitates the processes of sensuous perception. It is the part of the treatise which the psychological student can least of all afford to overlook.

JAMES SULLY.

IV.—CONSISTENCY AND REAL INFERENCE.

IT would not be going too far to say that the principal difficulty in the way of a student of Logic at the present day (at any rate in England) consists not so much in the fact that the chief writers upon the subject contradict one another upon many points, for an opportunity of contradiction implies agreement up to a certain stage, as in the fact that over a large region they really hardly get fairly within reach of one another at all. To quarrel upon specific points people must have at any rate some principles in common; where this is not the case, they have little else to do than to make up for the vagueness of their dissent by the vigour with which they give expression to it. Much of the consequent confusion can, we are convinced, be easily allayed by a simple process of intercomparison, provided only the various systems be referred to their leading principles of distinction. In adopting such a plan we need make no apology for confining our attention to the most popular and familiar writers on each side; indeed for such representative purposes they are distinctly the most suitable. But, at the same time, it must be understood that though nominally comparing authors, we are really comparing systems.

That we have not overrated the magnitude of the divergence between the various systems will be evident from a very few extracts and quotations. Hamilton, by implication rather, and Mansel, formally and explicitly, deny that the subject-matter with which Mill is occupied deserves the name of logic at all; they regard it as being nothing more than a somewhat arbitrary selection from Physical Science. Mill in turn gives equally conclusive indications from his side. He declares, when discussing the import of propositions, that the Conceptualist view is "one of the most fatal errors ever introduced into the philosophy of logic." Elsewhere he gives criticisms which amount to the retort that those who adopt that view are making logic nothing more than a somewhat arbitrary selection from Psychology.

Before proceeding to work out this distinction into some of its details, let us go back, so to say, to the watershed whence the different views as to the nature and province of logic must take their rise. Every one, it is to be presumed, will admit that a proposition is a statement in words of a judgment about things.* Without the words it is pretty generally agreed that there could be nothing more than the merest germ of thought, if even that; without the judgment expressed by it, it would clearly not be the appropriate action of a rational being; whilst without the reference to things it would, of course, fail in its main object of communicating knowledge, nor could there be any question raised about its material truth or falsehood.

Now, each of these three sides of the proposition might conceivably be selected as that which is distinctly characteristic of it, to the exclusion of the others; and since the proposition by analysis leads to terms, and by synthesis to arguments, what holds of the proposition holds equally throughout the entire field of logic. Hence we should apparently be led to three alternative views as to the general nature of logic. One of these views, however—namely, that which lays the stress on the words in which the judgment is couched—need hardly be discussed. It has indeed been maintained by Whately that logic is concerned with language, and with language only. But he does not adhere to this limitation, as indeed no clear thinker could, for the secondary and dependent nature of language as being a medium of thought, or having reference to facts, is far too prominent to be disregarded. Hence it follows that supporters of this view are under such powerful attraction to one or other of the remaining two, that for all practical purposes we need not take any but these into account.

Beginning then with the Conceptualist view, that is, starting with the judgment as above indicated, we must, of course, take, as the element of the judgment, the concept, for this only belongs to the same, namely, the mental order or stratum of things. The concept and the judgment are, so to say, on the same plane; they are homogeneous and comparable the one with the other, whereas to mingle names or propositions with them would be to mix up disparate things.

It may be admitted at once that this view has simplicity as a merit; but let us just see to what lengths and sacrifices the determination to adhere to it will lead us. Taking the concept, which may be best defined as the mental* counterpart of a general name, we say that this is the real element of the judgment, that the judgment consists of two concepts standing in some sort of relation to each other. So long as we are concerned with general names, this will carry us on tolerably well; but how are we to treat *singular* names ? Most people would say that these refer directly to individual objects, that this and nothing else than this is their meaning. But the Conceptualist sometimes hesitates to say this, for to do so would be to make a dangerous approach towards subordinating the form to the matter. Accordingly the consistent thinker (and in a question of consistency it is, of course, to Mansel rather than to Hamilton that we turn) abolishes individual terms altogether. He goes the length of asserting that every proper name is a concept, which is perfectly general in its intrinsic character like all other concepts, and that if it does happen to fit only one individual in the course of time, this is a mere historical fact, and therefore alien to the logician's consideration. By so saying, he may be presumed to mean that my mental representation of any given individual, say Socrates, can contain only a limited selection of attributes; that this limited group might possibly be found to recur again elsewhere; that, if it did do so, we should not then be able to discriminate between the two without a fresh resort to the individuals themselves with a view to obtain fresh attributes for the purpose of distinction, and that to do this would be to go outside the concept, in other words, to transgress into the matter instead of keeping to the pure form.

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* The reader is reminded that we are confining our attention, not entirely to English logicians, but to those who may be considered as influential here. No Hegelian, I presume, would consider what we have taken as our starting point to be in any way deserving of such a name.

Again, it must have struck many readers that the Conceptualist logicians make little or no reference to *belief*. The reason of this is not far to seek. For one thing, belief cannot but have some degree of reference to external objects, and with them no communication whatever is to be held, except, of course, as the original materials or data of thought. For another thing, when, as here, we are only occupied with necessary inferences, nothing but full belief, absolute or conditional, can intrude itself, and therefore we really need not attend to it at all. It need not come before us here, any more than before the pure mathematician; for, like him, we are only concerned with what follows from, or is consistent with, something else. Provided the links are necessarily connected together, we do not care how the chain may be fixed at either end. It is only when we deal with Induction and Probability and the delicate questions raised as to whether there is or is not sufficient ground for belief, that this consideration of belief is raised at all. Accordingly any distinction between real and imaginary notions is rejected, the only distinction recognised being that between the possible and the impossible, the former including every notion (whether or not there be things corresponding to it) which does not involve actual self-contradiction, and the latter those which do involve self-contradiction.

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* We are admitting for purposes of discussion the tenability of the Conceptualist doctrine—that is, we are not rejecting the psychological theories or assumptions upon which it rests.

Again, Classification, in any shape deserving that name, disappears, for it cannot be carried on without some observation and comparison of the objects to be classified. What takes its place is Division, for this is really classification confined to purely formal conditions. But even against this objections may be raised. The only way in which we can divide a class is by separating it into those members which do, and those which do not, possess some attribute; but we clearly cannot tell whether things do or do not possess any assignable attributes except by examination of them, and in purely formal logic this is precluded. It is quite true that division by dichotomy is formally valid, for, whatever be the nature of A, a thing must either be A or not-A. But then, as Mansel objects, what makes us think of A rather than of any other attribute in relation to the thing in question? Hence, though dichotomy in general, as a principle of division, is sound enough, it has nevertheless to be abandoned, because every particular application of it is suggested by reference to the objects and consequent knowledge of their properties, and of this the pure logician is jealous to the last extreme.

The treatment of Induction moreover is simplified. That any process so narrow and unproductive as the so-called Perfect Induction, should have acquired that name, and have been accepted on its own merits, is hard to believe. But when the general theory from which it follows is adopted, the question assumes a very different aspect. Let us resolve to stick to the analysis and composition of concepts, and this perfect induction, poor as it is, is the best we can attempt. It does not demand any resort to external nature, any fresh resort that is, the concepts originally set before us being sufficient for our purpose. It is as near an approach therefore to ordinary Scientific Inductions as can be attained by formulæ which are to hold true whatever be the nature of the particular subject matter to which they are applied.

The foregoing remark will serve to indicate the nature and extent of the divergence between the two opposed views, but something must now be said upon the two designations, Formal and Conceptualist, which are frequently used as practical synonymes to express them. These terms are obviously distinct in their original significations. "Formal" has reference to the *limits* of the subject rather than its actual nature. It reminds us that we are confining ourselves to those mental processes, or parts of processes, which are independent of the particular subject-matter, that is, in other words, which follow from the mere form of expression. "Conceptualist," on the other hand, refers rather to the nature of our subject than to its limits; it reminds us that we are occupying ourselves with the consideration of concepts or general notions as distinguished from external phenomena. The two terms are not indeed in strictness synonymous, nor need the principal doctrines implied by them be necessarily held together. Whately, for instance, is a thorough formalist, but he shows no predilection for the conceptualist doctrines.

It is true, on the other hand, that the consistent Conceptualist is under powerful inducements to adopt the formal view, partly on grounds of rigid sequence, but still more on grounds of psychological sympathy. Those who have for any reasons determined to confine themselves to the manipulation of concepts, will naturally recognise a deep and important distinction between those mental processes which do not, and those which do require us to go outside the concept for fresh matter in order to carry them on; that is, in other words, between those processes which are, and which are not, formal. Add to this the fact that those who occupy the conceptualist standpoint are, as a rule, those who believe in necessary laws of thought as an ultimate fact (a connection arising out of psychological grounds into which we have not space to enter here), and we see an additional reason why they should make a sharp distinction between the two classes of processes, respectively, which are, and which are not, formal. The distinction between formal and material, if admitted, cannot but be of some importance in any case, though it be little more than a distinction of method; but in the case in question it gets taken up by, and resolved into, the far more important distinction between what is *à priori* and what is merely empirical, and there are therefore additional and far stronger reasons for adhering to it.

If we now turn to the opposite or Material view of Logic, we find a similar series of mutually connected characteristics. Passing over some of those points which have been sufficiently illustrated already by contrast, let us come to that which admirers of Mill will generally regard as his strongest claim to originality, viz., his peculiar doctrine of the syllogism. We think that we are detracting little, if at all, from his merits by saying that this doctrine seems the natural, simple, and almost necessary outcome of the general view of logic which he has adopted. It is, in fact, upon his consistent following out of this view, rather than upon this or that conclusion in particular, that we should rest his real claims to high distinction.

His explanation of the syllogism will be arrived at most simply by referring first to what he says about the nature of the so-called immediate inferences. It may have struck some readers as noteworthy that he refuses to allow them the name of inferences at all. But there is surely a meaning in this, and the disputants on each side are quite consistent in adhering to their own views. Take, for instance, the proposition "All men are fallible;" from this we obtain by a certain series of processes, "Some infallibles are not men." Now regard these propositions as *judgments;* that is, stop short at the mental process of framing the judgment instead of going on to the facts about which the judgment is made, and it can hardly be denied that one of them is an inference from the other. They certainly cannot be called one and the same judgment, considering that they have different subjects, different predicates, different quantity, and different quality. And if they are not the same judgment, the latter must surely be an inference from the former. But penetrate to the *facts* to which these judgments refer, and we see at once that they are identical, or to speak more accurately, the one is a portion of the other. The things are the same, being merely differently grouped, or looked at from a different point of view. The same remarks will apply to another class of immediate judgments which have given some trouble to logicians, for instance, "A is greater than B, therefore B is less than A." Here also the judgments are distinct, whilst the facts judged are identically the same.

Now let us introduce the above distinction into the controversy whether the syllogism is or is not a *petitio principii,* and the dispute seems allayed at once, or, at any rate, its origin and existence are accounted for. The conclusion regarded as a judgment is unquestionably distinct from the premisses so regarded, and therefore from that point of view the ordinary theory seems perfectly tenable. But once let a thinker start with the determination that his propositions shall be regarded as, so to say, bottoming upon facts instead of stopping short at concepts, and there is an obvious incompleteness and difficulty about the old explanation. The conclusion, regarded as an objective fact, *is* the premisses, or rather a portion of them. We are accordingly driven to carry our investigations a step further back, and we then perceive that the only step in the reasoning at which new facts were appealed to, instead of merely new judgments about them being made, was in the formation of the major premiss. When, from a limited number of observed instances, we generalise so as to include the whole class to which they belong, we are talking and judging about new facts instead of merely varying our judgments about the old ones. Hence Mill's view readily follows, viz.: that it is the major premiss which really contains the whole inference, the remaining part of the syllogism consisting merely in identification and interpretation of what had gone before. As an illustration of the fact that this explanation of the syllogism, original and important as it is, is, nevertheless, that to which a consistent supporter of what we may term the Baconian view of logic, would necessarily be led, it may be pointed out that it has received for instance the support of Dr. Whewell. He is in radical opposition to Mill on fundamental philosophical principles, but agreeing with him on the whole as to the nature and province of scientific logic, he agrees with him in consequence on the point in question.

The foregoing remarks will be sufficient to indicate the nature and extent of the divergence between the two views before us. It would, of course, be far beyond the scope of the present article to attempt to decide between their claims, but something may fairly be said about some of their subordinate merits and deficiencies. For the Conceptualist theory the main recommendation is the extreme simplicity and homogeneity of the resultant system. Whatever is done is completely done. Nothing is admitted as demonstration, but what is (hypothetically) certain. We have none of those results, so dissatisfying to the lover of speculative accuracy, in which no final decision can be obtained by our mere formulæ, but the settlement of the question has to be abandoned to the judgment and skill of the practised observer. This completeness of result is moreover accompanied by a symmetry of treatment which is very fascinating to many minds. These merits are, of course, purchased at a heavy cost. In addition to the philosophical difficulties which the system involves, a large number of detailed objections may be raised against it. After the elaborate exposition of these given in Mill's *Examination of Hamilton's Philosophy*, there is no occasion for us to enter upon them here.

With regard to the defects of the Material view of Logic, those who accept it on the whole will not of course admit that they amount to serious and insurmountable obstacles. Nevertheless, their existence must be frankly admitted. They may nearly all be summed up in the charge of vagueness of outline, and uncertainty of result. We cannot lay down a precise line for the limit of logic and logical treatment in general, as distinguished from that of the special sciences. In definition we are forced to admit that the connotation of terms does not admit of accurate determination, but varies with usage, and may be almost entirely altered by scientific discoveries. When challenged to state after how many occurrences the repetition of an event may be confidently expected, or how many instances are required to establish an induction, we are obliged to admit that no definite answer can be given, but that it wholly depends upon the nature of the subject-matter. So with classification; this is no process which can be performed by rule, but it imperatively requires that sagacity of observation and judgment which only long practice combined with natural aptitude can secure. These difficulties are inherent in all human experience, and therefore no science which attempts to grapple with the facts of experience can avoid them.

There is, indeed, a special difficulty occasionally experienced by the student which must be regarded as irrelevant. Those, for instance, who begin with Mill are not unfrequently puzzled by his statement that Logic has to do with the facts or things themselves rather than with our ideas about them; and they not unnaturally ask, How can he then be an Idealist? and if so, is he not grossly inconsistent? The answer, of course, is that since the particular opinion which any one entertains as to the nature of the external world does not affect his position when dealing with scientific evidence in detail, it need not affect the position of one who deals with such evidence as a whole, viz.: the logician. It is a question of metaphysics which lies behind all evidence, and leaves it for the most part entirely unaffected, at least by any direct contact. The astronomer who infers that the sun is 92,000,000 miles distant from the earth is not called to account and questioned as to how he reconciles this statement with his metaphysics if he be an Idealist; and the logician may fairly claim a like toleration. If he lays it down that names are names of things, not of our ideas of things, that what is the import of a proposition is not the judgment but the facts to which the judgment refers, we have really no more occasion to pry into his metaphysical opinions than into those which he may happen to hold in theology.

The foundation and ground of Induction is a more serious difficulty; for, though like the last, it cannot by rights claim discussion in logic, it is nevertheless almost impossible so to treat Induction as not to provoke some perplexing inquiries. The Conceptualist, of course, avoids all this, for he is only concerned with that which is strictly necessary, and therefore with such Induction only (or what he gives that name to) as is performed formally and necessarily. But the material logician often finds himself in the position of having raised difficulties, by his mode of treating the subject, which almost compel him to commit himself to opinions which cannot be justified from a logical but only from a psychological point of view. Suppose that he says (as Mill does), that all our knowledge of the uniformity of nature is derived from Induction. He is at once met by some such objection as this : " You found that belief upon induction, and yet for every act of induction, even for the very first, you must postulate that belief ? " So long as we keep strictly to the province of logic, no answer, I think, can fairly be given to this objection. Every conscious act of induction must demand and presuppose a belief in the uniformity of nature, not indeed necessarily throughout its whole extent, but, at any rate, over some area; and therefore the belief cannot have grown up from the beginning by a series of such acts. In other words, if the inductive inference and the conviction of the uniformity of nature are both to be consciously apprehended, it appears to be a paralogism to regard them as mutually dependent on one another.

Let the logician, however, be permitted to transgress into psychological inquiries, and an answer seems ready to his hand. It may not be a completely satisfactory one, as indeed nothing final can as yet be looked for concerning the nature of belief, but it will serve to turn the edge of the preceding objection. He may fairly reply that we, or our ancestors, have *acted* upon that uniformity, as the brute creatures do, and that it was only at a later stage that consciousness awakened—that is, that what we call belief ripened out of mere association and habit. Take the case of one of the more intelligent animals. They undoubtedly act upon the uniformity of nature ; if they did not, they could not continue to subsist for a day any more than ourselves. Now, suppose a gradual dawn of self-consciousness in one of them, and a consequent desire to justify its mental processes. Precisely the same difficulty would then arise when it attempted to give a *reason* for processes which had been so long satisfactorily performed. The fact is that it is assumed that in Logic, though our processes may be sometimes unconsciously performed, they are, nevertheless, always capable of being called out into distinct consciousness when we choose. This need not be the case in Psychology, and indeed on the doctrines of the analytical or association school can seldom be the case with regard to ultimate principles. Hence the logician, when he attempts to give an account and justification of his proceedings in accordance with his own methods, will occasionally be reduced to the alternative of abandoning difficulties as insoluble, or of giving what will be objected against as involving a paralogism. It would avoid perplexity if he were frankly to assume or state his psychological premisses, and, if necessary, indicate the kind of justification he would give of them. J. VENN.

V.—THE THEORY OF EVOLUTION IN ITS APPLICATION TO PRACTICE.

CURRENT philosophical notions, characteristic of the most recently accepted system or manner of thought in any age and country, are apt to exercise over men's minds an influence which is often in inverse ratio to the clearness with which the notions themselves are conceived, and the evidence for the philosophical doctrines implied in their acceptance is examined and estimated. For any such notion may easily have different shades of meaning, and according to the relations in which it is used may imply many distinct propositions, which have no necessary connection with each other, and for which the evidence is very various, both in kind and degree: while yet, with whatever portion of this implication it may be employed, it is apt to carry with it the impressiveness and *prestige* which it naturally possesses as the last outcome of philosophical reflection. The fallacy of which we thus run a risk cannot be exactly classed among Bacon's "Idola Fori," or his "Idola Theatri," as it is neither due to the defects of popular language, nor to the defects of philosophical method: we must rather call it a hybrid between the two species, resulting from the communication between the Theatrum and the Forum, now much more fully established than it was in the time of Bacon. There would seem to be a peculiar danger of this fallacy in the practical conclusions deduced from the Theory of Evolution, as such deductions are various, complicated, and widely interesting, while they have not yet been systematically treated by any of the accepted expositors of Evolutionism. It is my object in the present paper to guard against this danger by distinguishing different propositions enforced or implied in the doctrine of Evolution as commonly accepted; and considering them severally in their bearing on Ethics, that is, on the Theory of Right or Rational Conduct. With this object, it will not be necessary to enter upon the fundamental question, whether the doctrine of Evolution is merely historical or properly philosophical: whether it merely gives us a probable explanation of the past, or such a justification of it as reason demands. In so far as I myself accept the doctrine, it is entirely on the former view: but adequately to justify this position would require a separate essay. Nor, again shall I have occasion to pursue the notion of Evolution beyond the limits of organic life: as the influence on practice which any speculations as to the past and future motions of inorganic matter may have is obviously so slight and indirect that we need not take it into consideration.

I. The widest sense in which the term Evolution is used appears to be merely exclusive of Special Creation. Thus, Mr. Spencer says that in forming "a conception of the mode in which living bodies in general have originated . . . . . we have to choose between two hypotheses,—the hypothesis of Special Creation and the hypothesis of Evolution." This latter hypothesis, as he immediately explains, is that "the multitudinous kinds of organisms that now exist, or have existed during past geological eras, ... have arisen by insensible steps, through actions such as we see habitually going on." Similarly, when Mr. Darwin speaks of "Evolution *in any form*," he seems to mean the general hypothesis just stated, in contradistinction to his own special hypothesis of Evolution by Natural Selection. It should be observed that in the above statement the production of living organisms out of inorganic matter is implicitly excluded from the hypothesis; for it is not held generally, nor by the writers to whom I have referred, that this is among the actions which we see habitually going on. What we do see is that living things change slightly in the course of their life, and also produce other living things somewhat different from themselves; the hypothesis, then, is that all the differences among living organisms, which we must conceive as having begun to exist at some point in the history of the organic world, have been produced by the accumulation of these slight differences. And without examining minutely the possibility of living things being brought to our planet from without, we may take it for granted that most of the living things that have existed on this earth have also begun to exist there.

Now in the controversial *mêlée* which has been kept up for half a generation about the "Darwinian Theory," it is sometimes forgotten that the hypothesis of Evolution, *in this wider and more general signification,* is sustained by an immense force of scientific presumption, independent of all special evidence. We cannot suppose, without contradicting the fundamental assumption on which all our physical reasoning proceeds, that an organism or any other material thing that has begun to exist, was not formed out of pre-existent matter by the operation of pre-existent forces according to universal laws; so that if we do not suppose each new organism to be developed out of some pre-existing organism, we are forced to regard it as causally connected in some totally unknown way with inorganic matter; and this is an alternative which few will embrace. And, again, it is manifestly illegitimate to assume that any new organic form was produced suddenly, *per saltum,* and so in a manner of which experience affords us no example; until it is proved that it could not have been produced by the gradual accumulation of such slight variations as experience shows us continually occurring.

On this point I need not perhaps dwell long. It is more necessary to argue that the theory of Evolution, thus widely understood, has little or no bearing upon ethics. It is commonly supposed that it is of great importance in ethical controversy to prove that the Moral Faculty is derivative and not original: and there can be little doubt that this conclusion follows from the theory which we are now considering. For when we trace back in thought the series of organisms of which man is the final result, we must—at some point or other, it matters not where—come to a living being (whether called Man or not) devoid of moral consciousness; and between this point and that at which the moral faculty clearly presents itself, we must suppose a transition-period in which the distinctly moral consciousness is gradually being derived and developed out of more primitive feelings and cognitions. All this seems necessarily involved in the acceptance of Evolution in any form; but when it is all admitted, I cannot see that any argument is gained for or against any particular ethical doctrine. For all the competing and conflicting moral principles that men have anywhere assumed must be equally derivative: and the mere recognition of their derivativeness, apart from any particular theory as to the *modus derivandi,* cannot supply us with any criterion for distinguishing true moral principles from false. It is perhaps more natural to think that this recognition must influence the mind in the direction of general moral scepticism. But surely there can be no reason why we should single out for distrust the enunciations of the moral faculty, merely because it is the outcome of a long process of development. Such a line of argument would leave us no faculty stable and trustworthy: and would therefore end by destroying its own premisses. It is obviously absurd to make the validity or invalidity of any judgments depend on the particular stage in the process of development at which this class of judgments first made their appearance; especially since it is an essential point of the Evolution-theory to conceive this process as fundamentally similar in all its parts. And it may be further observed that some of our most secure intellectual possessions are truths (such as those of the higher mathematics) of which the apprehension was not attained until long after the moral faculty was in full play.

All this is so evident, that what seems to need explanation is rather the fact that so much importance is commonly attached to the question as to the "origin of the moral faculty." I am disposed to connect it with that change in the common mode of regarding moral questions, which, in the history of English ethical thought, was effected by the influence of Butler. So long as the moral faculty was regarded* as really a faculty of "intuition" or rational apprehension of objective right and wrong, the history of these intuitions could seem of no more importance to the moralist as such than the history of our perception of space is to the geometer as such. But when the cognitive element of the moral consciousness fell into the background, and it came to be considered chiefly on its impulsive side, as a spring of action claiming a peculiar kind of authority, the validity of the authority seemed to depend on the assumption of an original legitimate constitution of human nature, and the proof that the moral impulse was derived seemed to afford at least presumptive evidence that its authority was usurped. For the old conception of Nature, used as supplying a practical standard (whether in Ethics, Politics or Theoretical Jurisprudence) always suggested a fixed and unchangeable type, created once for all, and therefore both original and in a certain sense universal notwithstanding numerous actual divergences. This latter notion has now entirely vanished from the regions of political and jural speculation, under the influence of the Historical method: in Ethics it still lingers: but the Theory of Evolution (which may be regarded as the final extension of the Historical method) is likely soon to expel it altogether from practical Philosophy.

II. Still reflection shows that the conception really essential to Butler's system, of a definite type or ideal of human existence by conformity to which conduct is made "right" or "good," is in no way irreconcilable with the doctrine which we are examining. In fact the term "Evolution" naturally suggests not merely a process of continual change, but one that brings into continually greater actuality or prominence a certain form or type, a certain complex of characteristics, which is conceived as having had a latent existence at the outset of the process. If, then, this type be regarded as in itself right or good, its place in a moral system will correspond to that of the "Nature" of præ-evolutional writers. Either notion professes to meet the largest demands of the moralist, by establishing a clear and definite relation between "what is" and "what ought to be;" though the demands are met in a different way in each case. On the older view we have to ascertain the ideal of humanity, partly by tracing history backwards to the cradle of the individual or of the race, and partly by discerning and abstracting the permanent type amid the variations and imperfections of actual men and societies. On the newer view we see it gradually realised more and more as the process which constitutes the life of the universe goes on. In either case the duty of realising this ideal furnishes the supreme rule of conduct; though on the latter view we have the satisfaction of knowing that the normal operation of the Power manifested in the universe is continually producing, to an ever greater extent, the result which we rationally desire.

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* As (*e.g.*) by Cudworth, Clarke, and the earlier orthodox moralists generally.

Here, then, in our analysis of the notion of Evolution, we have at length come upon an element of fundamental practical importance; though it is an element of which the presence is somewhat latent and obscure. Probably all who speak of Evolution mean by it not merely a process from old to new, but also a progress from less to more of certain qualities or characteristics. But that these characteristics are intrinsically good or desirable is more often implied than explicitly stated: otherwise it would be more clearly seen that this ethical proposition cannot be proved by any of the physical reasonings commonly used to establish the doctrine of Evolution. The truth is that the writers who have most occupied themselves in tracing the course of man's development have often not been practised in that systematic reflection on the play of their own moral faculty which is essential to clearness of thought in the discussion of ethical principles. In Comte's system, for example—and to Comte, perhaps, more than to any other single man, the triumph of the Historical Method in Politics is due—no clear reason seems to be given why the Progress, which is the end of the statesman and the philanthropist, should coincide with the Progress that the Sociologist has ascertained to be a fundamental fact of human history. It is certainly not from any blind confidence in the natural order of the Universe that Comte takes as a first principle of practice that we are to help mankind forward in the direction in which, speaking broadly, it tends to go. Yet this does seem to be his fundamental precept; for though he takes pains to show that an increase of Happiness attends on Progress, he never uses the production of Happiness as the end and criterion of proper moral and intellectual culture. It is rather the "bringing into ever greater prominence the faculties characteristic of humanity" to which he bids us direct our efforts; while, again, the development which we find in human history is defined as "le simple essor spontané . . . . des facultés fondamentales toujours préexistantes, qui constituent l'ensemble de notre nature." Such phrases remind us that we cannot take Comte as a representative of Evolutionism: and that his notion of development is transitional between the old doctrine of fixed types of human nature, and the new doctrine of a perpetual process of life, in which humanity, as we commonly conceive it, is but a stage accidentally marked off by the fact of our living now. A disciple of Mr. Darwin knows nothing of "always pre-existent fundamental faculties characteristic of humanity." In his view, as our ancestors were other and less than man, so our posterity may be other and more. If he includes in his conception of Evolution the notion of perpetual Progress in certain definite characteristics, these must evidently be characteristics which belong to all living things as such, though they appear with ever greater prominence as the evolution of life proceeds. Shall we then say that Progress consists in increasing complexity of organisation, or (to use Mr. Spencer's more precise phrase) in more and more "definite coherent heterogeneity" of changes in the living being correspondent to changes in its environment? But Progress thus interpreted seems no longer adapted to give us the ultimate end or first principle of Practice. For, though we sometimes use the terms "higher" and "lower organisms" in a way which might seem to imply that mere complexity of organisation is *intrinsically* preferable or desirable; still, perhaps, no one would deliberately maintain this, but only that it is desirable as a means to some further end. And this end would be commonly taken to be increase of Happiness; which most Evolutionists believe to be at least a concomitant of Progress." "Slowly but surely," writes Mr. Spencer, "Evolution brings about an increasing amount of happiness," so that we are warranted in believing that "Evolution can only end in the establishment of the most complete happiness." On this view, the Theory of Evolution in its practical aspects would appear to resolve itself into Utilitarianism, with the suggestion of a peculiar method for pursuing the utilitarian end. For, if nature is continually increasing Happiness, or the excess of pleasure over pain in the whole sum of sentient existence, by continually perfecting the "correspondence between life and its environment," this latter should perhaps be taken by us as the general means to the former end and the immediate object of our efforts.

III. A different view, however, is sometimes taken of the fundamental character of Evolutional ethics, which may be conveniently introduced by considering an ambiguity in the phrase I have just quoted. For the term "correspondence," or the nearly equivalent terms "adjustment" and "adaptation," as employed by Mr. Spencer and his disciples, appear to blend two different meanings; or, perhaps, to imply the necessary connexion of two distinct characteristics. They imply, namely, that the more exactly and discriminatively the changes in an organism represent or respond to the different changes in its environment, the more will the organism be "fitted to its conditions of existence" in the sense of being qualified to preserve itself under these conditions. But it seems that we cannot assume that this connexion will hold universally; for the responsiveness (*e.g.*) of an invalid's organism to surrounding changes is often more discriminating than that of a man in strong health, though less effective for self-preservation. Indeed, the common notion of "delicacy of organisation" blends the attribute of subtle responsiveness to external changes with the very opposite of strong and stable vitality. Having then to choose between discriminating responsiveness and tendency to self-preservation, an Evolutionist may take the latter as the essential characteristic of the well-being of an organism. And rising to a universal point of view, and considering the whole series of living things of which any individual organism forms a link, he may define "general good" or "welfare"—as Mr. Darwin does—to consist in "the rearing of the greatest number of individuals in full health and vigour [and with all their faculties perfect]* under the conditions to which they are subject." Here we have a very different notion from Happiness offered us as representing the ultimate end and standard of right conduct. Mr. Darwin, indeed, contrasts the two, explicitly rejecting "general happiness" as the standard, and thus distinguishes his ethics from Utilitarianism as commonly understood.

But can we really declare that when we apply the terms "good" or "bad" to the manner of existence of an organised being, we mean simply to attribute to it more or less of the tendency to self-preservation, or to the preservation of its kind? Certainly such a reduction of the notion of "well-being" to "being" (actual and potential) would be a most important contribution from the doctrine of Evolution to ethical science. But it at least conflicts in a very startling manner with those ordinary notions of Progress and Development, which I have already noticed as combining ethical and physical import. For, in our use of these notions, it is always implied that certain forms of life are qualitatively superior to others, independently of the number of individuals, present or future, in which each form is realised. Whereas the doctrine above stated, if pressed to its logical results, would present to us all equally numerous species as *primâ facie* on a par in respect of goodness, except, indeed, that the older (and so generally the "lower," as we commonly estimate) would seem the better, in so far as we have more evidence of their capacity to exist under the physical conditions of our globe. A closer investigation would, of course, disclose many differences in the prospects of future existence enjoyed respectively by the different forms, but these would but rarely and accidentally correspond to the commonly recognised differences of lower and higher. And if we confine ourselves to human beings, to whom alone the practical side of the doctrine applies, is it not too paradoxical to assert that "rising in the scale of existence" means no more than "developing further the capacity to exist?" A greater degree of fertility would thus become an excellence outweighing the finest moral and intellectual endowments; and some semi-barbarous races must be held to have attained the end of human existence more than some of the pioneers and patterns of civilisation. In short, when fairly contemplated, the doctrine that resolves all virtues and excellences into the comprehensive virtue

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* I have put this clause in brackets, because the term "perfect" implies some standard of "good" or "well-being;" and if this standard were different from that which the definition gives, the definition would be palpably faulty; while if it be the same, the clause seems superfluous.

> "of going on, and still to be"

can hardly find acceptance. At the same time, we must admit that ζῆν (in Aristotelian phrase) is a necessary condition of εὖ ζῆν; and, since living at all has been a somewhat difficult task to human communities, until a very recent period in the history of our race, the most important part of the function of the moral sense has consisted in the enforcement of those habits of life which were indispensable to the mere permanent existence of any society of human beings. This seems to me the element of truth in Mr. Darwin's view, and in that hypothetical construction of the origin and growth of the moral sense with which he has connected it. We may admit further that any defect in the capacity for continued existence would be a fault in a social system which no excellences of a different kind can counterbalance; but this is a very different thing from saying that all possible improvement may be resolved into some increase of this capacity.

IV. If, then, the Well-being of living things is somewhat different from their mere Being, however secured and extended in space or time, what is the content of this notion "well" or "good?" I have elsewhere tried to show that the only satisfactory answer to this question is that of the old-fashioned Utilitarianism which Mr. Darwin and his disciples are trying to transcend. The only rational ultimate ground, in my opinion, for pronouncing any sentient being in a "good" condition, is that its condition is calculated to produce as great an amount as is under the circumstances possible of Happiness, that is, pleasant or desirable feeling or consciousness: taking into consideration not its own happiness only—for we have no rational ground for preferring this to any other happiness—but that of all sentient beings, present or future, on whose manner of existence it exercises any influence. If this be so, it only remains to ask how far the notion of Progress or Elevation in the scale of life, as understood by Evolutionists, supplies us with clear guidance to the right means for attaining this ultimate end. Now, no doubt, in comparing the happiness of man with that of the lower animals, or the happiness of civilised man with that of savages, we commonly assume that amount of happiness varies according to degree in scale of organisation. We do this because what we really mean by "higher life" seems, when we look closely at the notion, to be convertible with *more* life. As Mr. Spencer says, "we regard as the highest life that which shows great complexity in the correspondences, great rapidity in the succession of them, and great length in the series of them;" the two former characteristics supplying a measure of the intensive quantity of life lived in a given time, and the latter adding its extensive quantity. And the experience of mankind, as a whole—though there are not wanting individual dissentients—seems to support the belief that Conscious or Sentient Life is, speaking broadly and on the average, desirable; that some degree of pleasure is the normal state of sentient beings as such and pain abnormal. Thus it follows that the "higher" such a being stands in the scale of organisation, the happier it is, generally speaking. In accordance with this general principle we regard the exercise of more varied and complicated activities, the extension of sympathy with the pleasures and pains of others, the development of scientific and historical interests, of æsthetic sensibilities, &c. —which might all be brought under the general notion of "progress in the correspondence between the organism and its environment"—as involving generally an increase of happiness. Still, in so far as we pursue any of these elements of culture for their own sakes, our pursuit is closely guided and checked by experience of the pleasure derived from them; and it would seem that this ought to be so. For, in the first place, the connexion above stated is not universal, as the more intense life may be intensely painful; and, independently of this, the notions of Culture, Elevation of Life, or Perfection of Organisation are not sufficiently definite to be substituted for that of Happiness as the immediate object of rational pursuit; indeed, the pleasure actually experienced seems often a better test of true development in any direction, than the latter (as otherwise estimated) can be of the pleasure that will ultimately accrue.

But the fact is that in the ordering of an individual man's life, Development or Perfection of Organisation scarcely comes into competition with Happiness as an end of action. For in this case we cannot alter the structure of the organism much or directly, but only to a slight extent by altering its functions; and the functions of each civilised man are, in most cases, determined for him in a combination of imperious bodily necessities and fixed social relations, and are exercised not for their own sakes but in order to provide adequately some more indispensable means of happiness. It is rather when we pass from the individual human being to consider the far more modifiable social organism of which he forms a part, that it becomes of fundamental importance to know whether the doctrine of Evolution can guide us to the form of organisation most productive of happiness. For, if this be so, the efforts of the statesman and the philanthropist should be primarily directed to the realisation of this form, and empirical utilitarianism would be, to a great extent, superseded in the political art. The right social order would, no doubt, approve itself as such by the general experience of happiness resulting from it; but it would become unscientific to refer to this experience as determining the settlement of great political questions.

Before, however, we consider if our knowledge of sociology is sufficiently advanced to enable us to define the political ideal, we must notice one fundamental difficulty in constructing it, which arises inevitably from the relation of the individual man to society. For the most prominent characteristic of the advanced development of any organism is the specialisation—or, as Mr. Spencer calls it, "differentiation"—of the functions of its different parts. Obviously the more this is effected, the more "definite coherent heterogeneity" will be realised in the organism and in its relations to its environment. But obviously too, this involves *pro tanto* a proportionally less degree of variety and complexity in the life of each individual member of the society whose functions are thus specialised; and their life becoming narrow and monotonous must become, according to our present hypothesis, less happy. This result has often been noticed by observers of the minute sub-division of labour which is a feature of our industrial progress : but the same sort of *primâ facie* conflict between individual and social development occurs in considering most of the great problems of modern politics; such as the relations between rich and poor generally, the relations between governors and governed, and the relations of the sexes. Now, as it is the individual, after all, who feels pleasure and pain, it is clear that his development (or happiness) must not be sacrificed to attain a higher form of social organisation ; the latter end can only be sought within the limits fixed by the former ; the point then is to determine what these are. It may be thought, perhaps, that the history of past stages in the evolution of society will indicate the reconciliation or compromise between individual and social development to which the human race has gradually been working up. It would seem, however, that history rather shows us the problem than its solution. For, while a continually greater specialisation of functions is undoubtedly an ever-present feature of social development, we have to notice as proceeding side by side with this a continually fuller recognition of the rights and claims of the individual as such. And this, giving a point of view from which the elements of the community are regarded as equal and similar, considerably qualifies, and, to some extent, counterbalances the tendency to "heterogeneity" above noticed ; it is obvious, *e.g.*, that an ancient society with a fully developed caste-system, where the existence of the individual was absorbed in and identified with his social function, was, in some respects, more heterogeneous than our own, in spite of the greater differentiation of functions in the latter. Hence we have on the one hand an ever increasing social inequality, and, on the other hand, an ever profounder protest against this inequality; and, whatever the right compromise between these conflicting tendencies may be, it does not seem possible to determine it by any deduction from the doctrine of Evolution.

For when we turn to examine the principles of social construction propounded by eminent sociologists, we see very plainly that any attempt to determine the political ideal by a scientific formula of Social Evolution must at least fail in obtaining that "consensus of experts," which is, to common men, the most satisfactory guarantee of scientific method. Those thinkers who are most confident of having discovered the law of progress seem hopelessly disagreed as to the next term in the series. For example, Comte teaches us that the "influence dispersive du principe de la spécialisation," tending in its extreme form to a "sorte d'automatisme humain," must be met by a corresponding development of that "réaction nécessaire de l'ensemble sur les parties," which constitutes the proper function of government. "L'intensité," he says, "de cette fonction régulatrice, bien loin de devoir decroître à mesure que l'évolution humaine s' accomplit, doit, au contraire, devenir de plus en plus indispensable ;" and actually, he holds, we find the two tendencies to specialisation and to central regulation developing, as progress goes on, so as to balance each other by a continually proportionate increase. And certainly the amount of regulation contemplated in Comte's Utopia would seem sufficient to counteract any conceivable development of centrifugal impulses. While Mr. Spencer is no less confirmed by sociological study in his opposite doctrine that the proper function of government is what he calls "negatively-regulative control," viz. : the prevention of mutual interference and the enforcement of free contracts among the members of a community. Mr. Spencer supports his ideal of organisation by a reference to biological analogies ; but, here again, his view is diametrically opposed to that of our most eminent living morphologist.* In this diversity of opinion, it is perhaps premature to consider the practical results that would follow from our attaining really scientific prevision of the social relations of the future. But I must observe that it would still remain to be proved that the mere advance to a higher stage in social organisation is necessarily accompanied with a proportionate increase of happiness. Past history shows us the greatest differences in the prosperity of different nations on approximately the same level of social development ; and it seems most reasonable to suppose that such prevision of social changes as we are likely to attain will rather define the limits within which the political art has to operate than furnish the principles of the art itself.

V. Hitherto, in considering the bearing of Evolutionism on the theory of right conduct, we have assumed that such conduct is to be not only objectively rational, or the best means of realising what is ultimately good ; but also subjectively rational, consciously chosen by the agent as a means to this end. This, however, though in the view of most moralists it seems to be the ideal form of human action, is manifestly not the universal or even the most common form. Men are prompted to action by other appetites and desires far more frequently than by the desire to do what is reasonable or right :

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* Cf. Professor Huxley's essay on "Administrative Nihilism."

so that some ethical writers even ignore the very existence of this latter motive, and regard human action as always stimulated by one or other of the more special impulses; including what are called "moral sentiments," or immediate unreflective likings and aversions for particular kinds of conduct, contemplated without reference to any ulterior end. Indeed the operation of such unreflective impulses appears to be the most prominent element in the common notion of "conscience": so that the denomination by the Utilitarian school of the common morality which they wish to supersede as "instinctive" or "sentimental" is not unfrequently accepted by other than Utilitarian Moralists. Now, if the doctrine of Evolution, in its application to the origin and growth of such instinctive impulses generally, and in particular of moral sentiments, is able to exhibit these as Nature's means of attaining that general happiness which is the conscious end of Utilitarian calculation; a reconciliation between "instinctive" and Utilitarian morality seems to be effected, which composes the long conflict between the two schools. This is, at any rate, the claim put forward by Mr. Spencer and other expositors of evolutionism.

In proceeding to examine the claim, we must first consider how this part of the Evolution doctrine is supposed to be proved. Two methods of proof have been put forward, fundamentally distinct, but yet not incompatible: in fact, so far from incompatible that one of them almost needs to be supplemented by the other. One method consists in the application to sociology of that hypothetical-deductive use of the theory of Natural Selection which has of late years been common among biologists of the Darwinian school. Moral sentiments, it is said, are impulses that tend to the maintenance of society; hence a tribe in which they were accidentally developed would tend to be victorious over other tribes in the struggle for existence: and thus moral sentiments would come to be a part of the essential characteristics of humanity: hence we may conclude that it was in this way that they were actually generated. It will be seen that this view of the moral sentiments is in immediate connection with that account of the Well-being of an organism which, distinguishing it from Happiness, reduces it (as I have already noticed) to Being actual and potential. In order therefore to harmonise it with Utilitarianism we require a further application of the same deductive method: as thus—Men are stimulated to actions and abstinences in proportion as they find these in the long run pleasurable and their opposites painful; therefore tribes, whose members derive the greatest balance of pleasure over pain from actions and modes of existence conducive to the preservation of the tribe will have a distinct advantage in the struggle for existence : therefore the societies that in the long run survive will be so constituted that the maximum happiness of their members will be attained by conduct tending to the preservation of society. But even the most roseate optimism must admit that this double harmony between pleasant and preservative conduct, and between individual and universal well-being, is ideal and future : that it does not represent accurately the present, and still less the past experience of the human race. And hence (as Mr. Darwin himself has not failed to observe), the theory of natural selection has less explanatory efficacy here than it has in its usual biological applications. For in those the variations naturally selected are taken as accidental, or at least no explanation of them is necessary for the justification of the theory: we have only to assume generally a slight indefinite tendency to vary from the parental type in the propagation of life, and then the action of the environment will do the rest. But in the case of the sociological changes above-mentioned, this simple account of the matter is hardly admissible. For as the interest of the community continually involves more or less sacrifice of the individual, especially in the early stages of human history which the theory contemplates, any individual varying in the direction of morality would be liable to be cut off, and would fail to propagate his peculiar type.* We require therefore some further explanation of the tendency of human character to take this particular line of change. For it will hardly do to reply that a *tribe* which manifested this tendency would necessarily flourish : the chances are so very much against the production of a tribe of which the individuals accidentally combine to maintain an individually unprofitable variation in one special direction. This further explanation is found in the second method to which I referred, which is the one employed by Mr. Herbert Spencer. His theory, briefly given, is this : that experienced pleasures and pains produce secondary likings and aversions for pleasure-causing and pain-causing conduct, which from being habitual become organic and so capable of being transmitted to posterity: and that through the interdependence of interests that results from gregariousness and the interchange of emotions that results from sympathy, it is the common experience of *all* that practically operates in producing these derivative sentiments and habits; so that they ultimately appear as instincts tending to promote the interests of the community.

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* " It is extremely doubtful whether the offspring of the more sympathetic and benevolent parents, or of those who were the most faithful to their comrades, would be reared in greater numbers than the children of selfish and treacherous parents belonging to the same tribe. He who was ready to sacrifice his life, as many a savage has been, rather than betray his comrades, would often leave no offspring to inherit his noble nature. The bravest men, who were always willing to come to the front in war, and who freely risked their lives for others, would on an average perish in larger numbers than other men. Therefore it hardly seems probable that the number of men gifted with such virtues, or that the standard of their excellence, could be increased through natural selection, that is, by the survival of the fittest."—Darwin, ***Descent of Man***, ch. v., 130 (2nd. ed.).

It appears to me that these two methods, taken together, furnish a highly plausible explanation of the development of morality in a race of animals gregarious, sympathetic, and semi-rational—such as we may conceive man to have been in the præmoral stage of his development. But I fail to see how we are thus helped to a solution of the conflict between the Utilitarian and Intuitional schools of Ethics : in so far, that is, as either school professes to supply not merely a psychological explanation of human emotions, but an ethical theory of right conduct. For, putting aside the discrepancy before noticed between General Happiness and the Preservation of Race, we are still left asking the question: what ought we to do when Moral Sentiment comes into conflict with the conclusions of Rational Utilitarianism ? Granting that both are really akin and spring from the same root, which ought we to obey, Reason or Instinct? As far as I can see, the "reconciliation" proposed by Evolutionists results in a practical surrender on one side or the other; though it is not always clear on which side, and a plausible case may be made out for either. On the one hand it may be said that Moral Sentiments (or other derivative likings and aversions) constitute Nature's guidance to Happiness; and that our power of calculating pleasures and pains is so imperfect as to make it really rational in the pursuit of happiness, to disregard the results of conscious calculation when they are clearly in conflict with any of these embodiments of unconscious reasoning and outgrowths of ages of experience. On the other hand it may equally be urged that the symbolical representation and comparison of experienced pleasures and pains which we call the exercise of practical reason, is only the final phase of that adaptation of the organism to its circumstances which in its earlier phases took place by the development of these secondary instincts : that, in short, if Instinct is really implicit (utilitarian) reason, it is better to perform the calculation explicitly. Certainly we can balance any statement of the sources of fallibility in utilitarian calculation by an equally impressive demonstration of the imperfections and misguidance of instinct, It may perhaps be said that an Evolutionist theory does not profess to prove that Utilitarian and Intuitional Ethics coincide in detail, but only to afford them a broad general ground of reconciliation. But in this case it seems to me ethically superfluous, whatever historical interest it may have. For this general result may be much more easily and satisfactorily attained by a survey of men's actual moral sentiments, and a comparison of them with the conclusions of utilitarian calculation. The practical disagreements between different schools of moralists, though their magnitude and importance are perhaps commonly underrated—certainly bear a small proportion to their agreements: but a theory of the origin of morality which merely explains the latter can hardly be said to effect a settlement of ethical controversy.

HENRY SIDGWICK.

VI.—PHILOSOPHY AND SCIENCE.

I.—AS REGARDS THE SPECIAL SCIENCES.

DISTINCTIONS, not Definitions—such is and must be the primary basis of all Philosophy. Before you can give a definition you must know in general what you are about to define, that it is something proper to be defined, and has a real local habitation in the world of thought. You cannot set out to define, as a certain Scotch lawyer swore, "at large;" you cannot put up with *definitio vaga*.

It is different with what are called Systems of Philosophy. There the work of Distinction is supposed complete, and you begin with applying them to the phenomena; your country is already mapped, and you proceed to measure its divisions. Systems of philosophy which have not thoroughly done the preliminary work of distinction cannot be permanent. For instance, Spinoza begins with a definition of *causa sui*; "by Cause of Itself I understand that, the essence of which involves its existence; or again, the nature of which cannot be conceived except as existing." Very good; but *is there* such a thing? Is such a thing possible to thought? There is at least one term here which calls for analysis. Essence may be considered to be sufficiently explained by being distinguished into the *nature* of anything as it is *conceived*. But Existence, what is that? Till we know that, we are ignorant whether any essence can possibly involve existence, whether putting "existence" into the definition of anything makes that thing to exist. There is a good deal of distinction-work to be done with reference to "existence," before a causal connection between a thing and itself, *causa sui*, can be founded on a conceptual connection between the essence and the existence of that thing. Till then, the famous definition of *causa sui* is all in the air, a definition "at large."

System then or no system, the first thing to be done and done thoroughly in Philosophy is to distinguish,—to distinguish in order to know what to define and what sort of notions to employ in defining it; and the first distinction to be established, and one which is a pre-requisite of all the rest, is between Philosophy and Science. The ground must first be won before we can proceed to distinguish the several provinces which it contains; there can be no distinctions within philosophy, unless there is a philosophy which is itself distinct from all other branches and kinds of knowledge.

This distinction cannot be a total separation; an unscientific philosophy would be no philosophy at all. But the distinction may be drawn in many ways, of which only one can be the true one. Four ways of drawing it may be enumerated as follows:

First, it is possible so to draw the line between them that nothing remains for philosophy but the preliminary guesses at truth which men have made before striking into the true methods of discovery, which true methods with their results are science, and supersede the old mistakes which are philosophy. If this were the true account of the matter, philosophy would have no *locus standi* in the intellectual world, only the ignorant would be its votaries, and philosophers would be no better than obscurantists, basing themselves more or less consciously on the maxim, *populus vult decipi et decipiatur*. This way of looking at the matter, being very prevalent in England, may perhaps be called English Positivism.

Secondly, the line may be drawn between them by saying, that as science advances, and divides into many branches, room is made for a co-ordination and systematisation of all, which is a work demanding separate treatment and separate labourers; and that this work is philosophy. This view is Comtian Positivism.

Thirdly, it may be maintained that philosophy is the discovery of Absolute Existence, and that the sciences only then become scientific when they are deduced from the laws of this absolute existence, from which they thus receive their whole scientific character. This is the Hegelian view.

Fourthly, a position may be taken up which ascribes to philosophy as its special work, besides the co-ordination and systematisation of the second head, a negative task,—the task of disproving and keeping out of science all ontological entities, whether these appear merely as spontaneous products of the uncorrected imagination or have been reduced into systems, such as for instance the Hegelian. This view is that taken by Mr. Lewes in the important work* which is now in progress.

There is yet a fifth view possible, the one which I shall endeavour to establish in the present paper. Briefly stated it is this: Philosophy is more than the co-ordination and systematisation of the second head, and more than the negative function of the fourth head; it has a positive content and a positive method of its own, and yet a content and a method which are in no sense ontological or transcendent. And this method and content are the permanent and indestructible *raison d'être* of philosophy, assuring to it an existence as a distinct kind of science.

Let me be allowed to dwell a little on what is involved in this view, which I have stated at present in very general terms. If philosophy has a distinct method and a distinct and positive content, it follows that there has been for some definitely assignable period a growing system of philosophical doctrine, of philosophical truths retained distinguishable from philosophical errors discarded, a system due not to one or two philosophers only, but to many, the growth not of a single epoch, but of centuries. There must be a history of philosophy different from the history of successive systems of philosophy, and from the law of their succession. The systems of philosophy are not philosophy, its history is not the history of their succession. It follows, likewise, that there cannot be a history of philosophy until the object of that history, philosophy itself, the growing system, has been detached and delineated.

But what meets us most prominently when we first turn our attention to philosophical subjects is the apparent absence of a philosophy, the obvious presence of a multitude of conflicting systems. What is the explanation of these two facts? The readiest explanation is offered by the first of the views enumerated above; the systems are present because undisciplined minds have abounded, the philosophy is absent because it is non-existent. But on the view which I am about to maintain, this easy explanation of the facts cannot be the true one. The true explanation is that philosophy is apparently absent because it is yet in its infancy, and the systems are obvious because they are necessary means of giving it birth. The systems would, on this view, have served a purpose consistent with their own untenability, and philosophy would have been receiving form independently of their decay. It is true that on this supposition philosophy must be as yet in a very early stage of its development, and so, no doubt, it is. Its systematisation as an organic whole is most imperfect; organisation is its primary need. But everything seems to me to show the possibility of such an organisation, the possibility of marking out and giving coherence to a body of philosophical doctrines which shall form for philosophers of all schools a common possession and a common basis, as they will assuredly have been won by a common effort.

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* *Problems of Life and Mind.* See particularly Vol. I. pp. 62, 75, 86, and Vol. II. p. 221.

Nevertheless, system-making in philosophy cannot be laid aside; there is one indispensable function which it alone can perform. It is the mode by which verification is effected; it is to philosophy what verification by observation and experiment is to the physical sciences. And by the nature of the case it is the only verification of which the phenomena of philosophy are capable; for these are not like those of the physical sciences, things which fall under the cognisance of the outer senses, but pure representations; pure, that is, from presentation; with these science ends, and with these philosophy begins. Its theorems consist not simply in thoughts about things, but in thoughts about thoughts of things. These pure representations, however, which are the phenomena, the facts, of philosophy must always be verifiable by the facts of nature, that is to say, in technical terms, by the presentations which they represent. In many cases these verifications are so simple that any one can perform them without a special scientific training, as, for instance, in the pure representation, "all visible surfaces are coloured." Others are more difficult, and here we must have recourse to science to prove the truth of the representation before we can admit it as a fact in philosophy.

Thus the law of gravitation is, in science, a thought about things, being, in nature, a general fact in the things themselves. Here the verification consists in examining the things. But the law of gravitation, as it is in science, in its character of a thought about things, becomes, in philosophy, the object-matter of a further examination, a philosophical one; it becomes one of the phenomena of philosophy, and the basis of thoughts which have thoughts of things for their object. Here the verification of any theorem of philosophy relating to the law of gravitation must consist, not in comparing the law of gravitation with physical phenomena, which is a verification belonging to science, but in comparing the theorem of philosophy with the law of gravitation as it is in science. The ultimate as well as the particular laws of science are among the phenomena of philosophy; it is only to be regretted that they are still so few. While, then, the laws of science are verified by the facts of nature, those of philosophy are verified by the laws of science; in other words, theories of philosophy must be made to harmonise with the laws of science so far as these are at any time known; and it is from this requirement that all legitimate system-making in philosophy springs.

In these remarks we may also read the explanation of the predominantly literary character of philosophy in contrast with science, of its workshop being the library not the laboratory, its pabulum the writings of previous or contemporary philosophers. For philosophy is primarily and mainly, I mean in its whole analytic branch, concerned with *clearing the ideas,* not with discovering new facts, but with analysing old ones; its problem being, not how the world came into being, but how, having come, it is intelligible.

I now proceed to establish the true distinction, as I conceive it, between philosophy and science. In the first place it is abundantly clear that they have points of agreement. Going back to the meaning of those who first called themselves philosophers, lovers of knowledge instead of possessors of it, it is clear that the position which they thus took up was not one of disregard to knowledge already attained, to knowledge in and for itself, but the adoption of a new point of view by the observer towards that knowledge; it involved a generalisation of the notion of knowledge, and brought out the fact that while they were possessors of some portions of knowledge they were only aspirants to possess other portions, which other portions were to them as yet unknown, and only to be called knowledge *in potentia, in futuro.* At the same time this future, and not yet actual, knowledge was necessarily assumed as being of the same kind, in point of being truly knowledge, as those portions which were already reduced into possession. Philosophy, then, was conceived as a further search, a pioneering expedition into realms as yet unknown, in order to bring them under laws of the same kind as those which constituted the knowledge already discovered.

So far there is, it may be said, no very wide distinction between philosophy and science; for science, too, must always have recognised the search for further knowledge as essential to itself; a science which professed to contain only what was already known, and not also means and methods for future discoveries, would be a mere *scientia docens,* not *utens;* and philosophy would be merely a grandiloquent name for one part of science, for that part of it which faced forwards into the as yet unknown and undiscovered. In short, if this distinction were all, the first of the views enumerated above would be fully justified.

But now comes another distinction. As science advances, her discoveries are made piecemeal, one by one; as they are made they are compared and classified; and thus along with the general advance of science there goes on a distinction of the whole into special sciences; and as the number of new discoveries increases in each branch of science, the growing mass and complexity of each branch becomes sufficiently great to occupy and more than occupy the whole energies of individual men, leaving them no disposable opportunity for making discoveries in other branches than their own. But in every special branch of science, as it is thus called into being by the growth and development of knowledge, the same distinction prevails, I mean the just noted distinction between present and future knowledge, between hypotheses that have and hypotheses that have not yet been verified. Here it is that the distinct scope of philosophy takes, as it were, a second step towards its manifestation. And the general forward outlook in the special sciences taken together, as distinguished from the already acquired knowledge, taken together, in all of them, is that which marks philosophy in this its second, but still most rudimentary, stage of distinction from science. Philosophy appears in this second stage of its life, so to speak, as taking the results acquired by each of the special sciences, and endeavouring to frame hypotheses which should unite them into a single system, and make them serve as a guide suggestive of new hypotheses.

The rudiments of the notion of philosophy, as distinguished from science, are thus given by the two combined characteristics of generality and hypothesis. But the rudiments only. And these same characteristics contain in themselves the germ of a third, which is necessarily developed from them. If we stopped at these two, seeing nothing else in philosophy to differentiate it from science, we should find ourselves holding the second view, that of Comtian Positivism. For it may be argued that, even supposing the greatest completeness in the number and organisation of the special sciences to have been reached, and by consequence the greatest generality in the hypotheses which will connect their results into a system of the whole; in which case the greatest possible difference would exist between the functions of science and those of philosophy, as they have been up to this point delineated; even then, it may be said, the functions of philosophy, so far as they have any scientific value, are not different *in kind* from those of science. Philosophy, the framer of general hypotheses, is merely a special science to which a particular task is assigned, for convenience' sake, that of co-ordinating the several sciences into a single system of sciences, and the results of all into a single science of nature. The main problems of philosophy would be two, or rather one with a double aspect, the Classification of the Sciences, and the Codification of the Laws of Nature ; in fact, just what Comte aimed at in his first great work, the *Cours de Philosophie Positive.* But neither of these problems is different in any essential characteristic from those of science proper, that is, from science in any of its special branches. The distinction of philosophy from science would be, then, in this case a detail, most important it is true, and even necessary, but one resting on no fundamental difference in their functions.

All this I take to be indisputable ; and if no other distinction than the two already mentioned can be shown to exist between philosophy and science, then it must be admitted that philosophy has no special *raison d'être,* no claim to a separate and independent but merely to a nominal existence, such as the term Positive Philosophy is intended to accord to it. I proceed, then, to show that there is a third characteristic, by which, in combination with the two former ones, philosophy is distinguished as different in kind from science.

All the special sciences, in their demonstrations, run up to certain ultimate notions as their basis of demonstration, and there they stop. Beyond these they do not care to pursue their analysis, content with the acknowledgment, which no one refuses, that those ultimate notions which they take as their basis correspond to realities of experience, and represent those realities with essential accuracy. Some among the special sciences base themselves upon notions which they take from other special sciences more abstract and more general than themselves ; physiology, for instance, partly upon chemical notions, partly upon mechanical, partly upon physical ; chemistry bases itself partly upon mechanical, partly upon physical ; these two last run up again into what is called rational mechanic ; and here for the first time we meet with ultimate notions which are not derived from any other more abstract special science, but are drawn directly from the fountain head, experience.

These ultimate notions are Mass, and Energy Potential and Kinetic. That is the shape into which rational mechanic has thrown the two older and vaguer notions of Matter and Force, for the sake of first defining them and then exactly calculating or measuring them. Mass is measurable matter, "quantity of matter" being its definition. Energy, potential and kinetic, is phenomenal and measurable force, as distinguished on the one side from force as the cause of motion, on the other from particular forces, that is, groups or modes of motion of a particular kind, as, for instance, gravitation or electricity. For both force and energy involve the notion of motion, the motion of masses or portions of matter in action and reaction with other portions. And both in mass and energy taken together, and in matter and force taken together, motion is involved. Motion itself again is abstracted and treated apart from the different kinds of matter which move, in a separate branch of science known as kinematic; and this branch forms the connecting link between rational mechanic and the sciences of pure mathematic. What I have, then, specially to observe is, that in rational mechanic we meet with elements or notions which are not derived from pure mathematic, and which have no other source than direct experience; and of these notions, which in their most abstract and general shape are called Matter and Force (measurable and calculable under the terms Mass and Energy), science can give no other account than that they are facts, and ultimate facts, of experience. Experience is their source, and experience also furnishes the verification of the reasonings concerning them.

Rational mechanic, in respect of its other elements, holds of geometry and the sciences of mathematical calculation, arithmetic, algebra, and the calculus, through the medium of kinematic. And these sciences include between them, and are based upon, the notions of abstract Motion (which involves those still more abstract of Space and Time), Number, Quantity, Continuity, Discontinuity, Infinity, and Figure. Pure mathematic includes all the methods of calculation and measurement so far as they are irrespective of what the things are which are calculated or measured. And as such these sciences base themselves upon certain ultimate notions which serve as principles of the processes of calculating and measuring.

The question accordingly arises with respect to these sciences of pure mathematic,—Are they competent to explain thoroughly the nature of those notions which they assume as their ultimate bases of demonstration? Does, for instance, the calculator explain what an Unit is? Certainly not. All he tells us is—We can count anything *once*. This *once* is the unit of numeration, and it is obviously independent of, and indifferent to, any particular kind of object counted (or measured) by it. In fact, he *defines* an unit, and defines it sufficiently for his purpose; it is defined in such a way as to serve for a basis of further reasoning, but not in such a way as to show on what it is itself based. He *defines* but does not *analyse* it.

Again, does the geometer explain how and whence he comes by his object-matter, how he comes to regard pure spatial extension as figured? No. He *begins* with figured space. Either he begins with the notion of Volume, and proceeds to analyse it by the ways in which it is bounded, or else he begins with the notion of Boundary, points, lines, surfaces, and proceeds to the construction of Volume. The Configuration of Space is his object-matter; and he analyses this, notionally as well as actually, to its remotest part; but he assumes Figured Space, in the general, *as a datum;* he does not tell us how it comes to be possible, but contents himself with saying that we all know it to be so, and that this his basis is sufficiently clear in meaning and secure in reality.

As I am not primarily occupied with the inter-connection of the sciences, it will not be expected that I should have stated the exact moment at which these ultimate notions are introduced into the sciences, or have made a distribution of them beyond the possibility of objection. It is enough that the positive physical sciences between them, from physiology to mathematic, do introduce these to them ultimate notions, namely, Mass and Energy (which may be taken as involving the higher notions of Matter, Force, Cause), Motion, Unity, Length of Time, and Configuration of Space. And I think I have made it sufficiently evident, that these ultimate notions, ultimate to the physical and mathematical sciences, are not ultimate in all respects. They are ultimate in respect that we can securely reason downwards from them, that is to say, construct valid definitions of them, and base valid demonstrations on them, in the physical and mathematical sciences; but not ultimate in respect that we can analyse them still farther, reasoning upwards from them, and ascending to still higher generalities and greater abstractions. Their validity as the basis of science is sought and found in what lies below them, in the concrete objects to which they are to be applied. It is conceivable they should also have another validity as deductions, or cases, of higher abstractions, to which they in their turn would serve as a basis of validity and as concrete object-matter.

The question whether any such higher abstractions are discoverable is thus posed by the sciences themselves; and the conditions of its solution are also laid down in the posing. We are required to find an answer to the questions, *What are* Mass, Energy, Matter, Force, Cause, Motion, Unity, Length of Time, and Configuration of Space? And the conditions of solution are, that the answers shall be in terms which do not repeat again the things about which the question is put (the common logical requirement in all solutions), but shall consist of higher generalities or abstractions, which yet shall be really known to us (not fictitious), and shall thus present us with new knowledge about the things in question. In other words, the notions in question are to be analysed or resolved into elements more abstract than themselves, which elements, in composition, shall give us again the original notions.

Now in thus approaching the question whether any such higher abstractions are discoverable, every way but one is barred to us. We start from notions representing concrete objects of experience, and representing those objects already in the most general and abstract shape. We cannot therefore look for the answer in any objects of concrete experience, or in notions representing them; because this would be to go to notions less, instead of more, abstract and general. We must pass beyond all concrete objects of experience, and beyond the most general notions which we can frame of such objects; and we have to answer the question *What?* τί ἐστι; concerning these most abstract notions. Where, then, is there a limit to our thought within which we may have been confined consciously or unconsciously,—a limit which is now to be removed and give freer scope to thought; where has there been a restriction which it is possible to take away? If there has been no such limit, no such restriction, then we cannot take a step beyond where we are already; we are already at the end of our tether, and *every* road is barred to us. The ultimate notions of science are then for us the ultimate notions in every respect, and the question whether we can refer them to higher generalities is answered in the negative.

But it becomes clear on a little further reflection that there has been such a limit and restriction, a limit by removing which we can take a step in advance and reach a still higher generalisation, yet without passing into the region of fictitious entities. For we have hitherto been regarding the objects of our enquiry *as objects*, that is to say as endowed, some way or other, with an existence independent of ourselves the spectators of them; or, if we have made a reservation to the effect that these objects are after all only phenomena relative to the percipients, still we have not as yet made any use or application of the reservation. But now the moment is come at which the fruits of the reservation may be reaped. We find that we can analyse the ultimate notions of science still farther, by looking upon them as phenomena relative to the percipients, and asking ourselves what features they possess in this their *subjective* character, in their character of states of consciousness as contradistinguished from their character of objects, or portions of an objective world. We are thus simply taking the obverse aspect of the very same ultimate notions which we were dealing with before; and the result is a new, and subjective, analysis of those notions which in their objective aspect (in which they were the bases of the sciences) appeared to be unanalysable and ultimate.

It is found, on thus regarding them, that certain modes of Sensation in combination with pure spatial extension and pure time-duration are the constituent elements of each of these ultimate notions taken subjectively. And by pure spatial extension, and pure time-duration, I mean the space-*element* and the time-*element*, in and with which any sensation is felt. Every sensation without exception has a time-element; every sensation of sight and of touch has a space-element as well. And by calling this element *pure*, I mean that it is different from the sensation, and as different from it is unaffected by division, continuous, having no divisions of its own, but receiving them from sensation. The divisions of pure time and of pure space are given only by changes in sensation, and without these divisions of pure time and pure space we should have no consciousness whatever of time in lengths of duration, or of space in its configurations or relative positions of points, lines, or surfaces. We have also here the source of the notions of continuity and discontinuity; of quantity, which is the sole object of measurement; and of infinity, the notion of which is nothing but continuity without break, or abstracted from discontinuity.

To count a thing *once*, which is the notion of an unit, depends on that thing being distinguished by change of sensations from what precedes and follows it in consciousness, no matter whether that change is arbitrarily introduced by ourselves, as in the case of units of measurement, or not.

Motion requires change not of sensations simply, but of their position in space, taking place in succession of times.

Cause involves the notion of the inseparability of things previously regarded as separables. But to treat things as separables is to treat them *as if* one was before the other in time, whether their order of sequence may, or may not, be equally well reversed, and the things found to be simultaneous. Cause therefore requires the notion of sequence of sensations in time.

For the notion of Force (if it is held necessary to introduce it into science in the character of a cause of motion), a peculiar class of sensations is required, that of muscular tension or effort, whether derived from efforts of our own which we feel ourselves, or from these carried over in imagination and attributed to objects which are or may be in opposition to ourselves.

Energy, if not explained by reference to force, is in that case simply a derivative of motion. It consists of changes in the position and motion of masses and parts of masses.

Mass, as remarked above, is nothing but matter scientifically treated.

And lastly, that solid resisting thing which we call Matter requires for its comprehension (speaking only of normal cases) sensations of sight in combination with those of touch and muscular tension. At any rate sensation (whether of sight, or touch, or both combined), but always in spatial extension, is the necessary and sufficient analysis of our notion of Matter.

It must suffice, in a paper like the present, just summarily to indicate the nature of the questions and answers which arise on passing onwards from the ultimate notions of science to their analysis as states of consciousness. As above I could do no more than enumerate the ultimate notions of science, without attempting to assign them with perfect accuracy to their respective places in science, so here I must content myself with indicating, and cannot pretend to demonstrate, the general nature of the analysis which these notions receive in philosophy. That analysis is a final one, in the sense that there is no further conceivable limit the removal of which would throw open another field, as the removal of the objective limit unbarred the entry into the field of subjectivity. The analysis is also an analysis of the *nature* of the things analysed, not an account of how they arise or what are their antecedents. Ultimate subjective analysis of the notions which to science are themselves ultimate,—such is the answer which I have to give to the question, What are the features which distinguish philosophy from science?

Up to this point, it will be observed, we have been occupied with the relation of philosophy to one class of sciences only, the physical and mathematical. When we come to the other classes into which the sciences are usually, and exhaustively, divided, a similar conclusion will be forced upon us. A *similar* conclusion, because in these classes of sciences, the Moral and the Logical, the ultimate notions which are their distinguishing and characteristic marks are already subjective; for which reason it is that these sciences are most usually treated as forming a part of philosophy as distinguished from science.

Interwoven as all the moral sciences are at every step with those of the physical and mathematical series, yet their subjective character is everywhere predominant, and their objective subsidiary. They are *practical* in their character, that is to say, the comparative importance of motives to conscious beings, the comparative value of states of consciousness, is the chief matter of discussion and inquiry. Whatever notions we take as ultimate in any of them, whether (for instance) that of Justice and Injustice in Jurisprudence, of Wealth in Political Economy, of Beauty and Deformity in Æsthetic, of the Good of a Community in Politic or Sociology, of Good and Evil in Ethic,—these ultimate notions, ultimate in respect of the particular branches of science which are based upon them, are yet capable of a further analysis into elements, an analysis not indeed differing from what has preceded it in point of subjectivity, since both alike are subjective, but still an analysis more searching than would be strictly necessary for a definition which should afford a basis for a branch of science. I mean that, with less searching analysis and consequently less accurate definitions, the sciences based on them would be less perfect, but not therefore impossible.

In Logic again we have, as its ultimate basis, the three postulates known as the laws or principles of Identity, Contradiction, and Excluded Middle. Upon these the whole doctrine of Logic rests, and for its validity no more is requisite than the statement of them. They carry their evidence in themselves. They are in a precisely similar position to that of the ultimate notions of mathematical science. They have too, as being even more abstract than most, if not all of the latter notions,—they have immediately attaching to them the double attribute of subjectivity and objectivity. They are at once laws of things and laws of thought. At least if they should be finally held *not* to be immediately laws of things, the discussions which have been raised upon the point suffice to show the *appearance* of such a double character in them. But even in their case a further subjective analysis is possible, an analysis by no means requisite to assure us of their validity, but certainly requisite to ascertain their nature. This analysis is of the same general character as in the case of the ultimate mathematical notions. It is into some particular *volition* and *time;* that is to say, we must attend to some feeling, distinct from others, before we can say, This feeling is this feeling (A is A); This feeling is-not what is not this feeling (No A is not-A); and Everything is either this feeling or what is not this feeling (Everything is either A or not-A).

The several sciences then, in every case, yield us notions, their ultimate bases, which are susceptible of a further subjective analysis, whether these notions are themselves objective as in the physical and mathematical sciences, subjective as in the practical, or both at once as in logic. But besides these ultimate notions of the several sciences, there is yet one notion to be mentioned, a notion not peculiar to any one science, but common to all, and involved in the particular ultimate notions of each. This notion is that of Existence. Different as the three groups of sciences, physical, logical, and moral, are in point of subjectivity and objectivity, yet the notion of Existence is involved alike in all. Not Matter only but States of Consciousness also have existence; they are what they are and while they are. What, then, is the notion of Existence, and does it belong to science or philosophy to answer this question? It clearly belongs to philosophy; first, because the notion of existence is more general and abstract than any of the ultimate notions of the physical or mathematical sciences; and secondly, because subjective existence, a notion which emerges first in philosophy, is an included part of the general notion which embraces existence both subjective and objective. We may put these two reasons in somewhat different phrase. The subjective aspects of material objects exist, as well as the objects themselves; and states of consciousness, such as are the emotions, and feelings of pleasure and pain, which have no material objects, yet exist for the Subjects of them.

Subjective states and objective things, then, are both alike *existents*. But they stand in a somewhat different relation to consciousness. The objective things are the nearer of the two to the consciousness both of the individual and of the race, counting from the moment when he or it begins to philosophise; the subjective states are the nearer to the consciousness of both, counting from the epoch when sentience arises. We begin to philosophise having "objects" already formed in the mind; but there has been a process by which these objects have been formed, prior to philosophical consciousness, but not prior to consciousness generally. It is a case for the application of the maxim—What is last in analysis is first in genesis; and what is last in genesis is first in analysis. Thus it has long being observed and often repeated, that the distinction between the two kinds of existents, subjective states and objective things, is not perceived at the earliest stage of an individual's experience.

> "The baby new to earth and sky,
> What time his tender palm is pre
> Against the circle of the breast,
> Has never thought that 'this is I:'

But as he grows he gathers much,
  And learns the use of 'I,' and 'me,'
  And finds 'I am not what I see,
And other than the things I touch.' " *

When, however, this distinction is perceived, then both kinds of existents become objects to the percipient; and the perception of both, in their contra-distinction, is itself distinguished by the name of reflective perception as opposed to direct, and by that of self-consciousness as opposed to consciousness simply. It is this "moment" of reflective perception or self-consciousness which is the central and cardinal feature in philosophy, and that which, by enabling us to distinguish the subjective from the objective aspect of things, distinguishes philosophy from science by an inner and indelible characteristic.

The answer, therefore, to the question, What is Existence? can only be given, if at all, by philosophy. But what that answer will be, I am not now to discuss. In general terms it may be said that, for philosophy, existence means presence in consciousness; *esse* means *percipi;* and this quite generally, so as to include all the modals into which the general proposition may be thrown; as, for instance, possible existence designates what is possibly present in consciousness; actual existence what is actually present in consciousness; imaginary existence what is imagined as present in consciousness; necessary existence what is necessarily present in consciousness, and so on. For all the modes of existence there are corresponding modes of presence in consciousness, and without a corresponding mode of presence in consciousness we should have no knowledge whatever of any mode of existence,—neither what it was nor that it was. In short, consciousness itself is the subjective aspect of existence, and each in its bare generality is the ultimate and common feature of which all the modes of consciousness on the one side, and all the modes of existence on the other, are differentiations. In this most abstract and general character, their character as *summa genera* of modals, they are unanalysable into elements, consequently undefinable, and only so far capable of explanation as the two throw mutual light on each other. We know existence as consciousness, and to know that we do so is self-consciousness.

Shadworth H. Hodgson.

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* Tennyson's *In Memoriam*, xliv.

VII.—PHILOSOPHY AT OXFORD.

No one looking at the books of the last ten or fifteen years can repeat the complaint that the English are indifferent to philosophy. Mill, Herbert Spencer, Bain, Lewes, Jevons, H. Sidgwick, the English translators of Comte, have issued volume upon volume—books which are not only printed, but circulated and read—and which have given rise to animated controversy. The widespread interest excited among us by philosophical discussion has no parallel in any other part of Europe; it would be impossible in Germany, which a short time since had the monopoly of speculation.

To this literature, Oxford has made contributions. But the university of Duns Scotus and Occam is no longer the *foyer* of Anglican speculation. The leaders of thought in England are outside us. We but participate in the thought process. It reaches us through the books which are written; which we read; which interest us a little on their own account; chiefly, in as far as they furnish material for examination papers.

Of this transfer of the speculative function, from the seat of learning to the capital, various causes have been assigned. The once reigning explanation, set on foot by Adam Smith and the economists, which ascribed it to the benumbing power of endowments, is no longer tenable in view of the surprising activity which Oxford has recently developed. The periodical press—daily, monthly, quarterly—is known to be largely in the hands of Oxford men. The *furor* for lectures and examinations, though here Cambridge takes the *pas*, is largely fomented by Oxford energy. And within the precincts of the place, at no period in our annals has the teaching of the young been so various, so extended over the elements of many branches, so carefully brought home to each individual student, as it is at present. The one thought of the leading spirits among us is how we can enlarge the field of our studies, and incorporate those branches of knowledge which still remain undomesticated in Oxford.

It is not then because philosophy is endowed here that it pines. For other things are equally endowed, and they do not decay in consequence.

The new school of economists have therefore inverted the doctrine of Adam Smith. For fifty years we meekly submitted to be told that we did nothing because we were overpaid. That idea took root, and flourished in the public mind. No sooner was it full-grown and about to bear fruit in disendowment, than it was found that the economists had changed their minds. Instead of too much money, it has been discovered that it is the having too little money that has impoverished learning and science in the university. The new pamphlets, which discuss university reform on commercial principles, concur in one point, viz.: that more money spent on it is all that is wanted to make any subject whatever flourish and abound among us.

I for one cordially concur in desiring a redistribution of the endowment fund in our university. But I am not so sanguine as to think that any such redistribution would do anything towards raising a school of philosophy in this place, or in elevating our general studies to the point of contact with philosophy. The causes of the atrophy of philosophy here are not to be found in its being disendowed. Indeed, it inherits its share of endowments. There are the philosophical chairs, and it has the fellowships in common with any other pursuit. But as, taking the widest view of speculation, the theological chairs may fairly be counted as its opportunities, philosophical thought may be said to enjoy quite exceptional encouragement from endowments.

The truth is that whatever influence for good or for evil endowments may exercise over other branches of learning, philosophical speculation is of a nature not within the control of commercial cause and effect. The genuine philosopher is as Carlyle's hero. When you call for him he will not come, and, when he comes, we thrust him from us. Philosophical lore, learning in the history of philosophy, the literature of the subject, may be obtained on demand. Philosophy is like religion; it is a temper, a habit of mind—not so much anything *per se*, as a form under which we think our thoughts and live our life. Philosophical speculation, inasmuch as it implies an unaffected and unbribed interest in truth—truth useless and loved for the pleasure of contemplating it—cannot be had to order.

The cause of the decay of philosophical interest in the university is to be found in considerations of wider scope. I can do no more than very briefly indicate them.

The speculative spirit in Oxford has always been bound up with theology, and animated by religious interests. To go no further back than the first quarter of the present century; there existed at that period in the university a pronounced and independent movement of mind. This had its focus in Oriel common-room. This very select society had become such by having imposed a new test of qualification for admittance. Instead of attainments it required originality of mind. Intellect, not scholarship, was the mark of a Fellow of Oriel. Not only did it become the highest distinction in the university to be a Fellow of Oriel, but the fellows were really men having an individual stamp. There was the widest diversity of opinion, and a fermentation of thought maintained among them, which was as a stimulating leaven in the mass of university torpor. Of course there was much disputatiousness, much "logomachy," much sophistry. But at bottom their intellectual effort went to sound and probe the sources of the thought and feeling of their age. Thus this effort was a truly philosophical effort, inasmuch as it sought to pass by the war of opinion to the causes of opinion. It was lamentably crippled, incomplete, shapeless. There was no light on this arena. The wrestling of these heroes was as the wrestling of men bound with chains in the vaults of a dark prison. A philosophy must be the concentrated expression of the life of the period. The thinking of these men did not amount to a philosophy, for they could not grasp in its totality the self-consciousness of their generation. The movement of mind, of which I speak, was not even a school, for it contained men of directly opposite opinions, and included Hampden with Keble, Arnold (Dr.) with Newman, Blanco White with Whately. What was wanting to these men was knowledge. They wanted a knowledge of the past, a knowledge of the present, and of the thread by which the present is tied to the past. They were imperfectly acquainted with the condition of their own England. Of Hegel or Schleiermacher they had never heard the names. Of Chateaubriand, de Maistre, or de Bonald they had probably never read a line. But they were themselves doing blindly and in a corner what Schleiermacher and Chateaubriand were doing in the full blaze of day. They were assisting at the resuscitation of religious sentiment, at the attempt to re-unite Christianity with the thoughts of the age. So the movement had this attribute of a philosophy, that it went down below the surface of popular opinion and sentiment in search of the principles on which such opinion and sentiment could be based.

This was the first stage of Oxford thought in the nineteenth century, which may be taken as occupying the first thirty years of the period.

Out of this *first* phase of intellect, which was neither a philosophy nor a school of thought, but a vague state of inquiry, arose the *second* which filled the second quarter of the century. This second phase is connected with the well-known name of Dr. Newman. In this second period the vague intellectualism of the previous generation had become a school. It had definite opinions, and worked in a prescribed direction. This—the Tractarian movement—was primarily a religious movement, and so far does not belong to the chapter of university history which I have undertaken to write. This movement presents itself to the political historian as an uprising of the Church of England, a mere resuscitation of the Church spirit which had been dormant since the extinction of Jacobitism about 1760. And such, in fact, it was. Yet as far as our university interests were involved in it, this church movement was merely the outside form which was taken on by an intellectual movement. The agents of the church movement, little as they thought it, were determined by the secular process of thought which was working itself out through the theological controversy which raged from 1830 to 1848.

The best heads of the party, Mr. Ward, Mr. Thomas Mozley in the *British Critic,* above all, Dr. Newman, endeavoured not merely to justify their position by argument, but fairly tried to find the intellectual standing ground on which their *de facto* convictions rested. They did not like Blanco White re-examine these convictions in their essence, but they did try to go back to their logical antecedents. The first movement, prior to 1830, failed of being a philosophy because it had not breadth enough to compass and express the feeling of its generation. This second—the Tractarian—movement, fell still further short of being an adequate representative of the mind of the period. It not only did not comprehend its age, but it developed itself in antagonism to its age. The first period had tried, feebly and without knowledge, to formulate the thought of the time. The effort of Dr. Newman was directed to produce a principle which should counteract the popular prejudices. He sought not to expound and verify the elements of belief which were floating in his atmosphere, but to nullify and counterwork them. His intellectual effort was one, not only of re-action, but of counteraction. In an honest endeavour to get nearer to the truth of things than the conventional Philistinism of "liberal" politicians, Dr. Newman dug down and found a little below the surface the disused principle of "authority." Disgusted with the cant phrases of reform oratory of his day, he missed the deeper principle of Reason, which all the while lay below the surface of the Whig political tradition. He broke not only with the constitutional principles of 1688, but with reason. He threw off not only the scum of democratic lawlessness, but the allegiance which the individual understanding owes to the universal reason, and too hastily concluded that authority could supply a basis for a philosophic belief. Long before Dr. Newman gave in his adhesion to the Papal Church, the philosophic basis of his mind had anticipated the Syllabus and the Encyclical.

It is unnecessary to speculate on what might have been the next form of thought in the university, had Dr. Newman's school carried on the movement which he initiated and conducted. The union of the principle of authority with unlimited freedom of metaphysical speculation has been tried before in the history of Europe, and has produced no riper fruit than chicane and mystification, the volatilisation of thought, casuistical probabilism, with the result of the general humiliation of the intellect in the presence of the practical wielders of power and wealth.

Such might have been the case had the movement conducted by Dr. Newman continued and developed itself logically. But it did not continue. It was arrested suddenly by events which belong to church history, not to the history of philosophy. When the leaders quitted the university and the national church the rank and file of the party were at first stunned by the blow. But this was only a temporary dispersion. They soon re-assembled their forces. Intellect was gone from among them, but on a review of their strength they found that its loss was compensated by numbers and discipline. What under Dr. Newman had been a school of theological thought, became in the next generation an ecclesiastical party. This is the *third* phase of the Oxford movement, and it is in the middle of this that we are at present living.

It has been necessary to retrace so much of our past university life in order to deduce the true cause of the present stagnation of philosophical thought among us. In the *first* period, 1800-30, there was free movement, but blind groping, working its way out of the mist of insular prejudice in which the French universal empire had enveloped the "nation of shopkeepers." In the *second* period, 1830-48, though the terms of the controversy were religious, there was yet a philosophical principle at stake, The controversy on "private judgment" involved, if it did not elucidate, the question of reason *v.* authority. The dispute as to the merits of the Reformation was not a mere theological quarrel, it inevitably carried the thoughts of the disputants to the ultimate criterion of belief. At any rate, as the warfare was conducted by the press, by argumentative pamphlet, or learned volume, there was life which was favourable to thinking. It may be quite true that theological discussion is never on the level of philosophical discussion, as it is always more or less coloured by party spirit, or affected by church interests, and that hence it is never regarded with the respect which is accorded to disputed speculation in any other field. Still discussion, even though contaminated by the impurities of party passion, is yet water from the well of mind. Discussion breaks up the stagnation of fixed opinions. In one of his latest writings Dr. Newman has described the ordinary state of the average Englishman's mind.

"Great numbers of men refuse to inquire at all, they put the subject of religion aside altogether; others are not serious enough to care about questions of truth and duty and to entertain them; and to numbers, from their temper of mind, or the absence of doubt, or a dormant intellect, it does not occur to inquire why or what they believe; many, though they tried, could not do so in any satisfactory way." (*Grammar of Assent*, p 380.) This sentence indicates with tolerable precision the scope and the limitation of the inquiry which Dr. Newman inaugurated. "To numbers from . . the absence of doubt, or a dormant intellect, it does not occur to inquire why, or what, they believe." That is, we believe something first, and then we inquire why we believe it. The *credendum* is given, and we are to find rational grounds on which to rest it. This is the limitation of Newman's religious thought. But it *is* thought, for it inquires. It inquires, indeed, not into truth, but, some propositions being assumed true, it desires a quasi-philosophical representation of them in the intellect. Any how intelligence is at work upon the mental content. This was the service Dr. Newman rendered to philosophy in Oxford. We may invert Bacon's dictum and say "a superficial religion leads away from philosophy, a deeper religion leads to it."

All this mental movement ceased with Dr. Newman's abdication. Instead of spiritual conflict through the press, the weapons of our warfare now are carnal and political. Discussion is extinct, and controversy has taken its place. Even of controversy there is little; the theologians have betaken themselves to denunciation. The university, with a democratic constitution, is under the terrorism of an ecclesiastical Ring, whose final triumph would be clerical domination. This disturbed atmosphere is obviously most unfavourable to speculative thought. The philosophic energy is of the nature of contemplation. It is always found to be in an inverse ratio to outward activity. It requires as its conditions retirement from strife, detachment from interests, above all mental freedom. It cannot be expected to exist in a place where the more active minds find themselves engaged in drilling minorities of resistance; where those who, forty years ago, would have been occupied in searching the fathers or schoolmen for arguments, are now the wire-pullers of a division in congregation or of an election to the hebdomadal council!

This diversion of energy from theological debate to platform intrigue and manœuvre is one cause of the weakness of philosophical speculation among us. But it is only one cause. Another and a weighty influence, which is secretly undermining not only philosophical thought, but the genuineness of all study among us, remains to be noticed. This is the false direction of elementary teaching given to it by the system of honours and prizes.

It is sometimes thought that there is an essential connection between progressive knowledge and teaching. Beginners inevitably think so, for every beginner finds himself helped by going over and over the elementary ground. But after progress has reached a certain point, to be constantly dwelling upon the alphabet of the science, ceases to be a function of the understanding, and becomes mechanical routine. Now the prize-system as worked by us is a system under which the pupil is carefully excluded from contact with progressive knowledge, or knowledge in a state of movement and fermentation.

That teaching is not *per se* destructive of the love of knowledge may be admitted. It is sufficient to turn to the precedent of Germany in the last generation. The great manifestation of speculative intellect in that country, in the period which was closed by 1848, was professorial. Schleiermacher and Hegel, to name only two names, were eminently teachers. Did not Niebuhr apply to his class, Pyrrhus's words to his soldiers, "Ye are my wings!" And did not Gervinus write that "the best audience which a thinker can address, the richest soil which he can propose to himself to cultivate, is the ingenuous youth who fill our universities." Was it not the emulation of teaching, the mutual rivalry of the small universities, which stimulated the research of the biologist, or inspired the deep-musing idealist, in that heroïc age of German leadership of thought which is now a past age? Every thinker desires to communicate his thoughts; and how much closer and more encouraging is the sympathy of disciples to whom you can speak than that of a public for whom you can only write!

But among us there is a zeal of teaching which is not inspired by progressive knowledge. The whole of the literary and philosophical teaching in Oxford is in the hands of young men—the tutors of the colleges. As a class these men abound when they begin life in energy and ability. They overflow with zeal, and the ambition to act upon their pupils. But the zeal is not the zeal of the enthusiastic votary of science, who sees a vista of infinite progress opening before him, and desires to associate younger minds in following up the track. The young teacher as turned out by us has never been on any such track. He is an honour-man and a prize-man; *voilà tout!* and he knows the sure road to make others win honours and prizes, the road by which he himself won them. Even if he has better aspirations, he must not indulge them. He is embarked on the career of teaching, at twenty-five, say; and he finds himself at once the slave of a great teaching engine, which drives him day by day in a round of mechanical work. There is no stepping aside; if you fall out of the ranks, you perish. Study, or research, or self-improvement, is out of the question. The most conscientious tutor has the least leisure for his own purposes, as he is most anxious to do justice to his pupils. The desire of knowledge in the tutor who has once entered the lists of competition with the other tutors, if he ever possessed it, first becomes dormant, and then dies out. The teacher must not lose a moment in teaching a subject, in searching out its foundations, in inspiring his pupils with a love for it, with a desire to pursue it in a spirit of thoroughness. He must crowd into the year and a half of preparation a miscellaneous assortment of ready-made propositions upon the leading topics of philosophy, history, politics, and literature. Our system has gradually become one which carefully excludes thoroughness. It is the exaltation of "smattering" into a method. If the teacher goes about to give instruction in a subject, the pupils fall away from him. Their instinct tells them that time so spent is time lost. Hence the prize-student never goes near the professors. Many of our professorial chairs are filled by eminent men, masters in their department, and willing to give instruction in it. The existence among us of such men is of incalculable value. Few as they are, they are the salt without which the university would indeed have little savour. But they are entirely outside the practical working of the Oxford schools. If there are any professors who undertake the work of preparing young men for the examinations, they act thus in the capacity of tutors, and are less sought after in this capacity than younger men fresh from the schools, whose zeal is more alert, and whose interest is fresher. It is a recognised fact that the younger tutors are better than the middle-aged men, and that advance in thought and knowledge creates a gulf between the teacher and his scholars, who carefully keep away from such men, as persons who cannot help them towards the attainment of a first-class. What the aspirant for honours requires is a *répétiteur,* who knows "the schools," and who will look over essays for him, teaching him how to collect telling language, and arrange it in a form adequate to the expected question. It soon becomes indifferent to the teacher on what subject he lectures. The process of training for the race is the commanding interest. Training, be it observed, not intellectual discipline, not training in investigation, in research, in scientific procedure, but in the art of producing a clever answer to a question on a subject of which you have no real knowledge.

Such being the general conditions under which teaching here is carried on, it is easy to see what must become of Philosophy. For speculative effort, there is no place in such a system. For an original thinker to stand forward to expound a philosophy, to demand of his followers habits of meditative thought, to rouse the spirit of inquiry, to offer a connected scheme of life and mind, or a synthesis of the sciences, would be impossible. He would lecture to the walls. A professor may write, and address the public, but this is not professorial action; it is not localised in Oxford more than in London where his book is published.

Speculative philosophy, then, of the first order has no place in our lecture-rooms. So my history of philosophy in Oxford seems to sum itself up after all in the laconic formula of the often-cited chapter in Horrebow. But even under the *régime* of examinational tyranny under which we are living, all life is not extinct in our philosophical studies.

For such philosophical teaching as exists among us we must look to the "school" of classics, or "Litteræ Humaniores." We have in Oxford no "moral science tripos." Philosophy has no substantive existence of its own. It is an appendage of our classical training. "Classics" have always been the strength of Oxford education. They are still. Distinction in the final school of "Litt. Hum." is still the crowning ambition of a student's career. And it has been one of the best traditions of the place that in the study of the classics "things" were of higher value than "words." Even in the feeblest times we have held on as well as we could to the substance of the classical writers. Thus it has come to pass that of the great encyclopædia of Greek thought which goes under the name of Aristotle, we have never let go our hold on the Logic and the Ethics. I will not inquire how much of the vitality of these two subjects among us is due to the fact that the matter of them is eminently "examinable" matter. Every practical examiner knows that while it is difficult to frame a question that shall bind an examinee to a definite answer upon Plato, Aristotle possesses this useful quality in the highest degree. Be this as it may, the Aristotelian logic and ethics have survived among us, and around this branch of our classical reading has gathered what philosophical study we have. The prescribed philosophical curriculum as it stands at present is as follows:

Logic. The outlines of Moral Philosophy. The outlines of Political Philosophy. Under the head of Logic candidates are recommended to study the following subjects:—The nature and origin of knowledge; the relation of language to thought; the history of logic in Greece to the time of Aristotle; the theory of syllogism; scientific method, including a comparison of the methods of different sciences and the principles of historical evidence. Questions will be set in Trendelenburg's Elementa

Log. Arist. and in Bacon's Novum Organum. Under the head of Political Philosophy candidates are recommended to study the following subjects:—The origin and growth of society; political institutions and forms of government with especial reference to the history of Greece and Rome; the sphere and duties of government; the leading principles of political economy.

The following books are prescribed for the examination:—Plato's Republic, Protagoras, Phædrus, Gorgias, Laws 3, 7, 10. Aristotle's Nicomachæan Ethics, Politics. Locke on the Human Understanding, with either Butler's Sermons or Hume's Inquiry concerning the principles of Morals. The transcendental Æsthetik and Analytik in Kant's Kritik, and the Grundlegung zur Metaphysik der Sitten, with the two chapters of the Kritik der praktischen Vernunft, entitled severally Von den Grundsätzen, and Von den Triebfedern, der reinen praktischen Vernunft. (The above list of books is a list out of which the candidate is to choose three books, one of which must be Plato and one Aristotle.)

Candidates will be expected to show such knowledge of the history of philosophy, or of the history of the period of philosophy to which the philosophical authors offered by them, either as stated, or as special, subjects, belong, as shall be necessary for the profitable study of these authors.

The above are the requirements of the "classical" examination. In addition, the candidate *may* bring up as a voluntary supplement one out of the following special subjects:—

1. Aristotle De Anima.—2. The philosophy of the Eleatics, Heracliteans, and Megarians, with the Theætetus and Sophist of Plato.—3. The philosophy of the Stoics and Epicureans with the discourses of Epictetus, and Diogenes Laertius, b. 10.—4. The philosophy of Hume and Berkeley, with Berkeley's Principles of Human Knowledge, Alciphron, and Theory of Vision, and with Hume's Inquiry concerning Human Understanding.—5. Political economy, with one or more treatises to be selected by the candidate.

Whatever faults a fastidious critic might find in this bill of fare, at least he must admit that there is enough of it! If the Oxford curriculum contains all this, it must be mere calumny to say that philosophy has no place among us. There is enough here to fill up not merely two years, but ten years of any student's life! If there are classes of young men who are learning these things, there must also be teachers who are teaching them. Class-rooms which resound with these names, and handle these inviting themes, must be rich in interest of the loftiest kind, and must provide the best intellectual stimulant.

But the reality is very different from the show upon paper. The "special subject," which figures so large upon the programme, does not come into play at all. As a candidate can obtain his first-class quite as well without, as with, a special subject, it would be supererogatory to offer it. It would savour of presumptuous vanity in him to parade himself as an Admirable Crichton before the examiners with a pageantry of acquisition, which was useless for the sole purpose of the examination—that of awarding the honours. Besides, the special supplementary subject cannot be offered unless the candidate has already presented a "third book"—itself an extra. The special subject then stands in the Calendar for ornament rather than for use.

Even after this gaud has been stripped off, and the "third book" with it, there remains a substantial quantum of "philosophy" in the examination, which must stop the mouth of the calumnious critic, who would charge neglect of the subject upon the university.

Let us look into the case a little more closely. For his whole preparation for this ordeal, the examination in "Litteræ Humaniores," the student has at most two years—academical years; many have only one and a half years. Philosophy is only a portion of what he has to prepare. Under the head of the "Histories of Ancient Greece and Rome," a table of requirement is presented, which I need not transcribe here, but which in compass of matter is not behind that which prescribes the philosophical apparatus. But history and philosophy are not the only employment of the student's two years, if he can afford two years. There is a third element called in the syllabus, "The Greek and Latin languages." It is true that this magnificent denomination shrinks, in the fact, to what the student calls his "texts." Now even if we allow that this part of his preparation has been spread over the first year of his college course, and even was begun at school, yet a large part of his two final years must necessarily be claimed by conning texts so difficult as the "Ethics," "Republic," Thucydides, Herodotus, Polybius, Tacitus, with the closeness and frequency which will enable him to dash off in three hours accurate translations of long passages from them at sight. And failure in this branch of the examination, it is generally held, though there is some difference of opinion and practice on this point, cannot be compensated by other merits. The "texts," therefore, besides the time demanded for them, constitute what we may call a preference mortgage on the student's industry. When all time thus claimed has been deducted, how little of the two years is left for the stowage of all that rich cargo of philosophy!

I wish to have it borne in mind by my readers that I am not now bringing under consideration the Oxford literary curriculum in its whole results on the mind and character. I am to speak only of that single element which enters into its composition under the name of philosophy. I have never, in the capacity of examiner, analysed the papers which are handed in in the examination-rooms as the results of these two years' preparation, without astonishment at the combination of scholarship, varied knowledge, command of topic, and scientific vocabulary, which the candidates can bring to bear upon the questions! I have felt a thrill of awe at standing in the presence of such matured intellectual development detected in young men scarcely out of their teens! The thought has been inevitably forced upon me: If these minds are already arrived at this stage at twenty-one, where will they be at forty; surely these young men have used their time well, who in the third part of (say) two years have exhausted the process of human thought from Thales to Hegel; they can have nothing more to learn!

A nearer acquaintance, however, with the whole result of the system dispels the illusion. If from the papers we turn to the minds from which all this clever writing has emanated, we shall find no trace of any philosophical culture in them. The question, or thesis, is on a philosophical subject, but the process by which the question has been answered has been not a philosophical action of mind, but a purely literary or compositional process. Looking at the paper of questions which are set would be enough to convince us that they could not be answered by mere knowledge of the subject—such knowledge as could be acquired in the third part of two years. Quite another way must be taken in the preparation of the candidate. For two years the pupil is thus forced along a false road of study in which neither science nor philosophy encounter him. Memory is really almost the only faculty called into play. Were they facts with which the memory is thus charged, the inadequacy of the system would be apparent at once. But in the preparation for this examination, instead of facts, the memory is charged with generalised formulas, with expressions and solutions which are derived ready-made from the tutor. The first principle of philosophical, nay of intellectual, training, viz., that all should be educed from the pupil's own mind, is here inverted; all is poured into him by his teacher. The teacher does as much, and the pupil as little, as possible. The utmost that the student can acquire from the system is that he has learned to write in the newest style of thought, and to manipulate the phrases of the last popular treatise. This innocent *jeu de mots,* however, furnishes a favourite text for the ecclesiastical platform, on which we have Oxford "teaching" denounced as sceptical, infidel, anti-Christian. If those who hold this language wished really to secure the interests of sound learning in the university, they would direct their efforts not against "scepticism," but against the pretentious and hollow superficiality of the training for the philosophical school. Out of this training some few stronger natures may emerge unscathed. A still smaller number of the most vigorous may even be braced by re-action against the oppression to which their minds have been subjected. But in the average Oxford prize-men we too plainly recognise the symptoms which indicate that he has suffered from the forcing-house; mental pallor, moral indifferentism, the cynical sneer at others' effort, the absence in himself of any high ideal. He knows of everything, and truly knows nothing. For him intellectual enjoyment is passed away; the taste for reading which he brought to college he has lost there; he has lost reverence without acquiring insight; he remains an intellectual *roué*, having forfeited the native instinct of curiosity, of which, as Aristotle says, Philosophy was born.

Philosophical initiative being thus crushed between the upper millstone of ecclesiastical terror, and the lower millstone of the competition machine, has its one refuge in literature. Oxford continues to contribute its share to philosophical publication, a share, however, in which translation or criticism greatly preponderate over original investigation. My report would not be complete without a mention of some of the books most recently published.

(1.) The first place is due to Mr. Jowett's translation of Plato,* a work of stupendous labour by one whose activity in other directions is never impeded by the drudgery of the desk. As a translation these volumes belong to the province of the philological critic. The introduction and appendices bring them into our catalogue of philosophical books. Among the "additions" which the title-page of this second edition speaks of, may be mentioned the criticism of utilitarianism in the introduction to the Philebus, and that of Hegelianism in the introduction to the Sophist.

(2.) Messrs. Green and Grose have reprinted Hume's philosophical works.† The introductory dissertation by the first-named editor is of such extent and mark as to call for substantive notice. I must express my regret that an introduction to another book should have been chosen as the vehicle of matter which is considerable enough to form an independent treatise. From a publisher's point of view an octavo volume, a reprint of a classic, is disproportionately distributed, when, of its 560 pages, 300 are occupied by the modern editor's words. From an editor's point of view, it is a doubtful recommendation of the author you are reprinting to erect against him an apparatus of hostile criticism so elaborate and destructive as Mr. Green's of Hume. The effect of this introduction, on the mind of the reader who has gone through it, is to convince him that he need never again look into Hume's *Treatise on Human Nature!* Lastly, from an author's point of view, it is certain that whatever reputation was to be earned in such a field, Mr. Green has foregone by hiding his talent in an introduction. He will hardly get credit for the amount of patient thinking, or for the labour of comparison and verification of passages in Hume, and in the discursive Locke, which he has gone through. It may be conjectured that the editor began with the mere intention of prefacing so much as was necessary to show Hume's relation to his predecessors, and that, once embarked upon this explanation, thoroughness of mind compelled Mr. Green to investigate Hume's position to the bottom.

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* *The Dialogues of Plato* translated into English, with analyses and introduction by B. Jowett, M.A., second edition revised and corrected.—Five vols. 8vo. Oxford "Clarendon Press," 1875.

† *Hume's Philosophical Works*, edited with preliminary dissertations and notes by T. H. Green and T. H. Grose.—4 vols. 8vo. Longman, 1874, 5.

The first impression created upon the reader of this introduction is that it is "an attack upon Locke." Thus impressed he will regret that the great Archegus of rational thought in England should be thus ungraciously treated by one of his own sons. Further study of Mr. Green's pages will lead him to see, that, if Mr. Green is ruthless in exposing Locke's inconsistencies, it is not for the sake of a triumph over Locke. Locke, indeed, comes out of the fire greater by all the pains here taken to find out once for all how far his system was self-contained, how far it went, where it stopped short. The reader will begin by siding with Locke against his critic. It will slowly dawn upon him that Mr. Green has a higher object in view than mere iconoclasm. This "introduction" is nothing less than a treatise on the insufficiency of empirical metaphysics, of the philosophy of experience. Locke, and Berkeley, and Hume are, each of them, only an historical point in the development of the theory of our popular logic, as represented in the present day by the school of Mr. Mill. It is the unstable and inconsistent character of the theory which is really the subject of Mr. Green's dissertation. He takes the most minute pains to show what each of the three contributed to the empirical theory; where they overstepped their premisses; where they made assumptions from which they had previously excluded themselves.

Hume's own work, according to Mr. Green, leaves upon the mind the impression of a much less serious attempt to undertake a constructive explanation than that of Locke. Not that Hume was merely trifling with the topic, but that his aim was rather to show the inconsistencies involved in metaphysical thinking as it stood in his day. He did not seriously affect to be reconstructing knowledge on a basis of fact. We find in him much more of the ancient sceptic than of the positive philosopher. If there sometimes appears in him something of the charlatanry of his age in declamation against "metaphysical jargon" in the name of common sense, this is partly real, partly an ironical concession to popular prejudice. The modern positive philosopher seems to agree with Hume in that he plumes himself upon not going in quest of any "thing-in-itself" behind what appears to his senses. But all the while he does so, he is supposing a real order of things having a permanence and uniformity of its own quite independent of his perceiving it. This, which is the modern theory of the physical sciences, is very far from being Hume's position. Hume followed Berkeley in setting aside the material order; he went beyond him in annihilating Berkeley's supposition of the reality and knowability of spirit and its relations, including even the self-spirit. Under the disguise of an introduction, Mr. Green has in fact issued a declaration of war, from an idealist point of view, against the reigning empirical logic. To this challenge, Mr. Lewes's *Problems of Life and Mind* may serve as the ready-made rejoinder.

(3.) "The *prolegomena* which precede the translation have not been given in the hope, or with the intention of expounding the Hegelian system. They merely seek to remove certain obstacles, and to render Hegel less tantalisingly hard to those who approach him for the first time." Such is the modest notice by which Mr. Wallace (of Merton) introduces us to one of the most finished essays on a philosophical subject which recent years have produced.* Thinkers, at least in our day, are seldom good writers; many of them notoriously dark, awkward, illogical. In the case of J. S. Mill, indeed, the vigour and lucidity of the understanding was mirrored in the style. But the style wanted classical grace and literary polish. In Mr. Wallace's essay there was no scope for originality, but while there is no lack of vigour, the graces and amenities of composition have been studied as far as is compatible with the higher duty which a teacher owes to the matter which he has to impress.

What Mr. Wallace fears is true, that the Hegelian system is not made as clear as day by his *prolegomena*. The true Hegelian resents explanation. As the genuine Cameronian gradually narrowed the circle of the elect till it embraced only himself—"or aiblins twa"—so to the Hegelian disciple what has become intelligible is no longer a part of the true faith. And Mr. Wallace is almost intelligible throughout. A few flights into the region of hallucination may be allowed to an Hegelian expositor who wishes to preserve his credit with the elect, whose motto is "credo quia absurdum!" I do not suppose that any exposition can be devised that shall make clear the identity of thought and being, the central point of the Hegelian system. It can only be acquired by time and slow assimilation. It is, as Hegel himself said, like learning to walk upon our heads.

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* *The Logic of Hegel*, translated from the Encyclopaedia of the Philosophical Sciences, with Prolegomena by William Wallace, M.A.—8vo. Oxf. Clar. Press, 1874.

(4.) It was stated above, as a sign of the times, that interest in natural theology had almost died out. Mr. Jackson's *Philosophy of Natural Theology** must be named as an exception, though the theological character of the volume does not admit of more than a mention of it in this place. I may, however, add that, though a theological argument, it is one of most remarkable fairness. Mr. Jackson says of himself, "It was my most anxious wish and endeavour to be honest; to advocate what I thought true, without disguising the difficulties of my own conclusion, or assailing its antagonists by gratuitous insinuation." MARK PATTISON.

VIII.—THE EARLY LIFE OF JAMES MILL.

JAMES MILL was born on the 6th of April, 1773, at Northwater Bridge, parish of Logie Pert, county of Forfar or Angus.

The spot of his birth is not far from being a central point in that part of Strathmore, extending into the two counties Forfar or Angus and Kincardine or the Mearns, called "Howe of Angus," and "Howe of the Mearns." The strath or plain is four to six miles wide, and lies between the Grampians and a line of coast hills of much lower elevation.

Northwater Bridge is a bridge on the Northwater or North Esk, a river inferior to the Tay and the Dee but still a considerable stream, rising not far off in Glenesk in the Grampians and flowing across the county from west to east, entering the sea three miles north of Montrose. Of its various bridges, the oldest and most important is the one that gives the name to Mill's birth-place; a three-arch stone bridge built about two centuries before his time, on the great central line of communication from the north of Scotland to the south; the bridge near the sea for the coast road being built only in the end of last century. The river is for a great part of its course the boundary of the two counties.

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* *The Philosophy of Natural Theology*, an Essay in confutation of the Scepticism of the present day, by the Rev. William Jackson, M.A., F.S.A.—8vo, Lond., Hodder and Stoughton, 1874.

The parish of Logie Pert, a union of two older parishes, Logie and Pert, lies along the right bank of the North Esk, and is the last of the Forfar parishes northward. Across the river is Marykirk, lower down St. Cyrus—the coast hills and coast parish.

The account of Logie Pert parish in the old statistical account of Scotland was drawn up by the parish minister, Mr. Peters, in the year 1791. It is most careful and minute, and will enable any one to form a very accurate picture of James Mill's life and surroundings, both physical and social. The parish is about four miles long by three miles broad; it contained in that year a population of 999 persons. It was mainly an agricultural parish; but had also two bleachfields—Craigo and Logie, a small flax mill, and even a snuff mill, besides meal mills. There were also limestone quarries then largely worked. The river yielded a good supply of salmon. The land for agriculture was distributed among thirty-six farmers; five or six paying from £100 to £200 yearly rent.

Northwater Bridge became the name of one of the leading farms, of which the farm-house was contiguous to the bridge; an unusually large and good farm-house, of four rooms in length and two storeys in height. This was also in Mill's time an inn and posting-house, kept by the tenant of the farm. Right and left of the high road south of the bridge, there were other houses, perhaps fourteen or fifteen, making up a hamlet, the largest in the parish, with a population of seventy persons. Blacksmith, wright, mason, carrier, small grocer or merchant—were all found here; in addition to which were cottages attached to the farm, and let by the farm-tenant. One of these was a clay-built thatched cottage, a hundred yards south of the farm-house of the bridge, and on the same side of the road (right hand going south). It was some twenty yards off the road, and at right angles, the gable towards the road. It had two doors and three windows; the farthest door from the road was the entry to the usual two rooms of a cottage—"but an' ben." The other door entered a single room, the room next the road. This was the cottage where James Mill was born. In front was the kail yard or garden: behind that, running at right angles, was a similar cottage inhabited by the head labourer or manager of the farm; at the south end of that cottage was the byre belonging to Mill's cottage.* Mill rented also a cow's grass; and the family continued to have a cow to the last.

The father of James Mill (also called James) was a shoemaker, and had a good country business, employing usually two or three men. Of his own previous history we know only that he worked at his trade some time in Edinburgh before settling in Northwater Bridge; and one tradition is that he built the cottage himself on ground belonging to the farm, and enjoyed it rent-free for a certain time in consequence. There are plenty of his name all over that part of Scotland, but the spelling varies, "Milne" being perhaps more common: his own name in the register of his son's birth is spelt so. The elder James Mill was industrious and steady in his calling, good-natured in disposition, pious and devout, but with no special claim to intelligence or any high mental quality. In the prime of his age he seems to have been in good circumstances, and to have saved money.

Mill's mother was Isabel Fenton, the daughter of a farmer in the Kirriemuir district of the country. Her exact parentage has not been traced, but there have long been a number of substantial farmers of the same name on the Airlie and other estates in that neighbourhood. In the thirteenth and fourteenth centuries the Fentons had landed property in the district, and were called the Fentons of Baikie. It is said that Isabel Fenton's father had fallen from much better circumstances, in consequence of joining in the Stuart rising of 1745. Forfarshire was the chief part of the Lowlands that was so infatuated as to take the field for the Pretender. The then heir of Airlie, Lord Ogilvie, led out a large band of tenants and residents, including, it is said, Isabel Fenton's father, who, with the rest, suffered severely by the ravages of Cumberland's troops, and was thenceforth a much poorer man. It is even said that he was himself a proprietor before 1745, but the circumstance is not verified. Isabel, at all events, looked upon herself as one that had fallen from a better estate. She was not taken direct from Kirriemuir to Logie Pert, but went into domestic service and resided in Edinburgh, where James Mill made her acquaintance while working there. Her character is difficult to rescue from various conflicting traditions. All admit that she was a proud woman; her pride taking the form of haughty superiority to the other cottagers' wives, and also entering into her determination to rear her eldest son to some higher destiny. She could do fine work, but was not in her element in the common drudgery of her cottage; she was given to the luxuries of the table beyond what her husband considered fitting. But it is the fancy of those that knew her that she was the source of her son's intellectual energy; although we can hardly obtain clear evidence of her possessing any superior powers of intelligence.*

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* Before the cottage was pulled down, some twenty years ago, a photograph was taken, which preserves its appearance.

The biography of James Mill requires a special notice of the tenants of the farm where his father's cottage lay. This farm, consisting of about two hundred Scotch acres, is on the Earl of Kintore's estate of Inglismaldie, and was commonly called "the bridge," or the "brig." The tenant was a member of the widely-spread and important family of the Barclays; in earlier times extensive proprietors in Forfar and adjoining counties, but latterly, for the most part, substantial tenant farmers. The lands of Ury were possessed by one branch of the family. The tenant—at the time of Mill's birth—died in 1794, leaving a widow and a large family, with whom James Mill was very intimate. The eldest son, who succeeded to the farm, Mr. David Barclay, was four years younger than Mill, and is the medium of much of our authentic information respecting him. One of the sisters, the youngest of the family, still lives, and is able to testify to some important events in Mill's early history.

The children of James Mill and Isabel Fenton were James Mill (1773), William Mill, two years younger, and a daughter, May Mill, two years younger than William. There are no family events to record for the early years of James Mill. He went, of course, to the parish school (in the centre of the parish) as soon as he was able to walk two miles and back. Of his schoolmaster I have heard no special accounts. It is a matter of fair inference that his superior talent was unmistakably shown in very early years. In fact, James Mill could not have reached his seventh year without disclosing to the stupidest observer his superiority over the other children of his years. His talent was of a kind that the common school elements would make manifest. He must have been distinguished in all the three R's. He had voice and elocution for a reader, he was a neat writer, had abundant arithmetical faculty and an admirable turn for languages. His parents at home could not be ignorant of his powers. As a matter of course, the parish minister would soon learn that an extraordinary boy was growing up at the Northwater Bridge. His mother's ambition resolved that he should be a scholar; by her he was nurtured and petted, and exempted from all distracting occupation. It is a very rare thing, indeed, for a boy to live in a humble rural family, be he ever so scholarly, without having to take some share in manual occupations, either field labour or artisan employment within doors. I have received the most emphatic assurances, from good authority, that James Mill neither assisted in his father's trade, nor took any part in the labour of the field, whereby he might have been less dependent on his parents. He saw what was going on, contracted an interest in farming, but his own sole occupation was study. His brother William was put to work in the father's shop, and so continued till he fell a premature victim to disease.

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* In 1840 Mr. Barclay wrote to John Stuart Mill, intimating that a property in Kirriemuir seemed to fall to him as his grandmother's heir; which may be taken as conclusive proof that she was a Kirriemuir Fenton. If we had the papers drawn up on this occasion, we should doubtless have her exact connections. Mill's reception of the news was characteristic. He would not take advantage of any mere informality in a will; but if there were a case, he would take any steps that might be necessary to secure the property for his paternal aunt's family, the Greigs. They took advice in the matter, but found that the genealogy was not, in their opinion, so fully made out as to justify them in risking a suit.

By desire of Lady Airlie, the minister of Lintrathen, Mr. Chree, furnished me with an account of the best known families of the name of Fenton in the Airlie district. One family possessed formerly a considerable property in Forfarshire. An anecdote, illustrative of Scottish life and character in the last century, is given by Mr. Chree, relating to a Fenton, tenant of Balintore, in Lintrathen: he was ejected by his landlord, at the instigation of the Earl of Airlie, for violently opposing the settlement of a former minister of Lintrathen.

After mastering the R's with a little English Grammar, Mill would enter the Latin class of the parish school; the fee at this stage 2*s* 6*d* a quarter. With the most humble tutorial assistance, and with his studious habits at home, he must have got on very rapidly: and, in fact, at ten or eleven years he would be at the end of the schoolmaster's curriculum.

It is much to be regretted that we have nothing but a few plausible conjectures to make up the history of his studies to his eighteenth year. It is as certain as it can be without positive contemporary registration, that he was sent to Montrose Academy, one of the good grammar schools of Scotland. He had, of course, to board in Montrose, and his education must then have been more costly; but his parents were able and willing to pay the expense. The Montrose Academy was once famous for Greek, being a preparatory school for the universities; and Mill here obtained, if not the groundwork, at least the finishing part, of the very good classical attainments that he carried with him to Edinburgh. But it is hopeless to inquire when, and how long, he attended the Academy; our evidence only suffices to make the fact itself indubitable.

We should not omit at this stage the assistance he received from the excellent and able minister of the parish, Mr. Peters, his friend all through. It is within allowable conjecture that if the schoolmaster ever staggered under the pressure of Mill's rapid advances, Mr. Peters would come to the rescue; would help the boy over difficulties, lend him books both for scholastic purposes and for general study, and guide and encourage him in his aspirations. He would also advise his parents, and confirm them in their determination to set him apart for a student's career.

A passage in a letter written long after, in an interesting moment of his life, may be quoted here as the only existing testimony borne by himself to his early feelings: "My pleasure shall consist . . . . . in establishing to myself that name in the world for wisdom and knowledge which was the darling object even of my infant years to think I should one day attain; and which I know I do not deceive myself when I think that few men, at my years (31), have laid so good a foundation for attaining." The circumstances probably gave an undue warmth to his expressions on this occasion.

I now approach what appears to have been the most important event of his early career, his connection with the Fettercairn family.* The beginnings of this connection are hopelessly

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* It is necessary to know a small portion of the family history of Sir John Stuart. The following particulars will suffice. He was a descendant of the great Stuart family. His mother Emilia Stuart, in 1752, married her cousin William Belsches, the heir of Belsches, of Tofts, in Perthshire. Her husband died the year after, leaving an infant son John Belsches. This son she educated for the Edinburgh bar. In 1775, when he was 22, he married Lady Jane Leslie, eldest daughter of the Earl of Leven and Melville. Two years after happened the event that lifted him to fortune. His mother, on the death of her uncle Sir William Stuart, in 1777, became heir to her grandfather Daniel Stuart, who was a man of wealth, but not seemingly in land. No estate is mentioned as transmitted; but in the same year was purchased by her the estate of Fettercairn, which had descended for generations in the family of the Earl of Middleton. An ancestor of Emilia Stuart Belsches had served in the army under William III., and in 1706 received a baronetcy; this title was now inherited by John Belsches. He was now Sir John Belsches, of Fettercairn, and his wife, Lady Jane Belsches. They had an only child, a daughter Wilhelmina, born in October, 1776. In 1797, Mrs. Belsches, the mother of Sir John, executed a settlement enforcing upon her son the name of his great-grand father Daniel Stuart, and he was henceforth Sir John Stuart, of Fettercairn, whence we have the name John Stuart Mill.

Sir John was elected member for Kincardineshire, in the Union Parliament, 1801; an occurrence that had an important bearing on James Mill's fortunes. He continued to serve in Parliament till 1807, when he was made a Baron of Exchequer, a promotion conferred for being a good adherent to his party. It was an honourable appointment (with a salary of £2000 a year), but the duties were light in comparison to those of a obscure; but before stating the traditions bearing upon the event I will make a few preliminary observations.

A young man born on the banks of the North Esk, in humble circumstances, and possessing superior abilities, would, as a matter of course, turn his thoughts to the colleges at Aberdeen. The distance from Northwater Bridge is thirty-eight miles, an easy student's journey. The distance to St. Andrews is much greater, to Edinburgh more than double. The Aberdeen colleges possessed numerous bursaries open to competition, the exercise being a "version" or translation from English into Latin. A £10 bursary would pay all the fees and in those days cover half the maintenance of a student for the college session. Moreover, there were in the patronage of the family of Ramsay, of Balmain (in Mill's neighbourhood), four bursaries of £24 a year, tenable for four years: so that one was vacant every year. Such a bursary would pay the fees and give a sumptuous maintenance to the student. A boy so distinguished as James Mill could have been put forward to the patron as a candidate for one of these bursaries, and notwithstanding the claims of factor's sons, clergymen's sons, &c., would eventually have succeeded. Add to all this that the parish minister, Mr. Peters, was brother-in-law to Professor Stuart of Marischal College, in Aberdeen, and in frequent communication with the professor, who was a man of some property in Kincardineshire, and came every year to visit his brother-in-law; while it is known that he became well acquainted with Mill, and was useful to him at a later stage. The minister and the professor would certainly have discovered a way of sending him to Marischal College. The sons of the clergy and the farmers in that district, we know, went to Aberdeen; a younger brother of Mr. David Barclay studied there. Had it been proposed to send Mill to Aberdeen, he was quite ready to go in his thirteenth, or at latest, his fourteenth year. Starting at that age he would have kept abreast of every branch in the curriculum, and probably have been the first man of his year. That he was detained at home till his eighteenth year, to be then sent to the University of Edinburgh, shows that some powerful hand had interposed at an early stage to divert him from what I must deem his obvious and natural career.

Lord of Session; and although Sir John studied for the bar, he could scarcely have ever practised. He held the office till his death in 1821.

It is not easy to find out what sort of man Sir John Stuart was. Few people can give any account of him. He was not even honoured with a newspaper paragraph on his death. The popular tradition of the neighbourhood makes him out haughty and ill-tempered. Lady Jane was revered for every virtue. Sir John's steady attachment to James Mill seems his chief title to honourable remembrance.

The account given by John Stuart Mill (*Autobiography*) of his father's introduction to the Fettercairn family is a somewhat loose version of the statement made to him by Mr. David Barclay in a letter written after his father's death in 1836.* We do not possess that letter, but we know the substance; and we have Mr. Barclay's own words in another communication, which he made to the *Montrose Review* in the same year. It was to furnish a biography of his father, for the *Encyclopædia Britannica*, that John Mill applied to Mr. Barclay for information. He placed the letter that he received in the hands of Mr. Andrew Bisset, who with some assistance from Mill himself, composed the article. Mr. Bisset had the advantage of being locally connected with James Mill's birth-place, and of having independent information respecting his early days. I therefore accept his rendering of the circumstances of the introduction to the Stuart family as the best now attainable; although it is not so complete as we should wish. "Some pious ladies," he says, "amongst whom was Lady Jane Stuart (she was then 'Belsches'), having established a fund for educating one or two young men for the Church, Lady Jane applied to the Rev. Mr. Foote, minister of Fettercairn, to recommend some one. Mr. Foote applied to Mr. Peters, of Logie Pert, who recommended James Mill, both on account of his own abilities, and the known good character of the parents." Mr. Barclay's published statement is to the same effect. He was himself rather too young to have remembered the circumstances from personal knowledge of what happened somewhere between 1783 and 1790; his account is a tradition from the elder members of his own family. Mill would undoubtedly be brought to the notice of Sir John and Lady Jane Stuart, either by their own parish minister, or by Mr. Peters of Logie Pert. The house of Fettercairn is only five miles from Northwater Bridge. How far Lady Jane was associated with other ladies, and whether Mill was but one of several young men that received the same assistance, it is impossible to find out. We know that Lady Jane was reputed in her neighbourhood as foremost in every good work; and, if the educating of a promising youth to the ministry had come before her as a proposal, she would have readily taken a part in carrying it out; and we are safe in giving her the chief credit of obtaining for Mill the higher start that he gained, in being taken at a mature age to the University of Edinburgh, instead of going to Aberdeen as a mere boy, however precocious or advanced. As I consider it morally certain that the resolution to send him to Edinburgh must have been formed several years before he actually went, his going to Montrose Academy for a time might be a part of the plan; and his parents may have been partly relieved of the cost of this residence by Lady Jane, although the general opinion is that their own means were equal to the effort.

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* The following extract from John Stuart Mill's letter to Mr. David Barclay shows the ignorance of the family as to their father's early history:—

"The chief points are the time and place of his birth; who and what his parents were, and anything interesting that there may be to state about them: what places of education he went to: for what professions he was educated. I believe he went through a medical course, and also that for the Church, and I have heard that he was actually licensed as a preacher, but I never heard him say so himself, and never heard of it till after his death. I do not know whether it is true or not; perhaps you do. How long did he remain at the University, or prosecute his studies for the Church? The history of his connection with the late Sir John Stuart."

As there are no particulars to relate of his years at the Montrose Academy, we next enter upon his college career, in which, strange to say, there is considerable difficulty in obtaining even the external facts. The registers of the University were so imperfectly kept, that, so far as they are concerned, we are left in the dark on some essential points. I have obtained from Professor Masson every item that the University records can furnish, and shall try to turn them to the best account.

He first appears in the records in 1790: so that he entered college at the unusually advanced age of 17½ years. For this session he is entered in the Senior Latin Class (Prof. Hill), and the Senior Greek Class (Dalziel). That is to say, he skipped the junior classes in both Latin and Greek, and entered at once into the senior, which gave him the rank of a second year's student. I reserve my comments till I give his whole Arts attendance. Next year, 1791-92, he is entered for Senior Greek, Logic (Finlayson), Natural Philosophy (Robison). Third year, 1792-93, Senior Greek.

This is all that we obtain from the College books, and it lands us in more than one puzzle. Besides the omission of the junior classes in the Classics there is no Mathematics (Playfair), and, more marvellous still, no Moral Philosophy (Dugald Stewart). As we know that he was destined for the Church, the first thing to ask is, what attendances did this necessitate? It is curious that such a matter should be doubtful, but so it is. The Act of Assembly in operation at the time merely specifies a course of Philosophy corresponding to the course for the M.A. degree at each university; but, in Edinburgh, the M.A. degree was rarely taken, and the regulations for it at that time are unknown to me. The subjects of the usual curriculum for a degree in Arts are understood to be Latin, Greek, Mathematics, Natural Philosophy, Logic, and Moral Philosophy. In Classics there were in all the universities junior and senior classes, but it may have been allowable to pass over the junior class if the student were sufficiently advanced to enter the senior, which Mill certainly was. Then as to Mathematics. I have heard, on good authority, that the subject was not, at that time, obligatory on students for the Church.* But that James Mill should fail to attend Playfair's classes seems to me very strange. With all his ability and devotion to study, and with the very best help that the Montrose Academy could give him, he could not have been so accomplished a mathematician as he was a classic. Moreover, to see him entering the Natural Philosophy class in his second year, without a previous mathematical course, is quite inexplicable. He might have had enough of geometry to enter the school of Plato, but certainly he had not enough to enter the school of Robison—the last of the adherents to the tough geometry of the *Principia*.

But it is when I look to the entry of his third year that I must express doubts as to the sufficiency of the record. It may be quite true that he gave a second unnecessary attendance on Dalziel's class, for Greek was his delight, and Dalziel was an admirable teacher, and seemed to notice Mill's aptitude; but that he should have attended no other class is wholly incredible. He must have attended Dugald Stewart this year: the Church never dispensed with Moral Philosophy; and, if it had, he would not have neglected Stewart. The power of Stewart's lecturing has been repeatedly celebrated; but by no one more than Mill. The following passage has already been printed; it occurred in a letter seemingly addressed, in 1821, to Macvey Napier, Jeffrey's successor in the *Edinburgh Review*:—"All the years I remained about Edinburgh, I used, as often as I possibly could, to steal into Mr. Stewart's class to hear a lecture, which was always a high treat. I have heard Pitt and Fox deliver some of their most admired speeches; but I never heard anything nearly so eloquent as some of the lectures of Professor Stewart. The taste for the studies which have formed my favourite pursuits, and which will be so to the end of my life, I owe to him."

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* The late Professor Cruickshank, of Marischal College, had heard his colleague, Dr. Glennie, state that he remembered a discussion taking place in the General Assembly on the question whether students going into the ministry should be made to attend Mathematics. The smallness in the attendance in the Edinburgh Mathematical classes renders it very probable that students for the Church could dispense with the subject, the numbers being less than half of those attending Latin and Greek.

If we can satisfactorily challenge the completeness of the college records, as I think we may, we are then at liberty to suppose that Mill, in his first year, attended Playfair's Mathematical class, in addition to Senior Latin and Senior Greek, which were hardly sufficient to occupy his time. He may have attended Playfair's second class in the second year, along with Logic and Natural Philosophy, as well as Senior Greek, a voluntary attendance.*

Excepting his strong testimony to Dugald Stewart's fascination, which, no doubt, was the stirring of his own great philosophical aptitudes—"I, too, am a metaphysician"—we have not a shred of information as to his doings or feelings those three Edinburgh winters. From extraneous sources we know what Edinburgh was in those years; the local colouring—political, literary, and social—has been given in connection with many memoirs, as well as in the general history of the time. We can tell who were his distinguished contemporaries and class fellows; but let us first pass on to complete his college studies.

We have good cause to grumble at the bad registration of the Edinburgh University; but as regards Mill's subsequent studies at the Divinity Hall there is an incidental record, which gives us some real insight into his mental progress. His Divinity studies commence in 1794, and occupy four winters. The Theological professors we see were—Divinity, Andrew Hunter; Church History, Thomas Hardie; Hebrew, William Moodie. Of Dr. Hunter I am unable to speak; but the professor of Church History, Hardie, is cited by Mill himself, in his translation of 'Villars,' in terms of high praise. The passage there quoted does credit to Hardie's vigour as a reasoner. It is directed against ritualism and superstition. Hardie must have been of the stamp of Principal George Campbell, of Aberdeen, and his lecturing would probably be in keeping with Mill's intellectual phase at the time.

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* The biography of John Leyden, Mill's contemporary and class-fellow, is of some use here. Leyden entered, in 1790, the Senior Latin and Greek classes, and, although his biographer does not say so, the college record shows that he attended Senior Greek with Mill, and Junior Greek also. In 1791 he took Logic (with Mill, of course), Mathematics, and Classics again. His third session he devoted to Moral Philosophy, Rhetoric, Natural Philosophy, and Natural History; thus, like Mill, finishing the Arts' course in three years. With this information we may fairly say that Divinity students found three years enough.

As to the Logic class, Leyden's biographer seems to believe that Professor Finlayson must have been an able teacher, from the number of able thinkers that passed through his hands. More particularly he remarks that Finlayson "recognised the native energy of thought and the assiduity of Leyden, and not only bestowed on him particular notice, but found employment for him in the preparing of other students, and acting as his own amanuensis." I take this to mean that Leyden assisted him in reading class exercises; a proof that Finlayson did not prelect merely (like Stewart and Robison), but gave the students work to do. That Leyden should have risen to the leading position in the Logic class of that year shows that James Mill, in those days, was disposed to hide his light under a bushel: an explanation is obviously wanted. The Logic class of the year following contained Thomas Brown, thus treading on the heels of Mill, and we are quite prepared for the statement (given in Brown's *Life*) that "Finlayson's approbation was decidedly expressed."

Mill might have followed Leyden's example, and taken Rhetoric in his third year, or even Natural History. I cannot account for John Stuart Mill's supposition that he may have studied in the Medical classes. Perhaps, in conjunction with Thomas Thomson, he may have attended the lectures of Black, which drew students from all parts.

But what interests us most is the Librarian's Register of the Theological Library, which contains the titles of the works taken out by the students, with their names appended chiefly in their own hand. Here we have a clue to Mill's reading during those four winters. Of course he had other sources: he might have access at the same time to the General Library; and, besides his own private collection of favourite authors, he could borrow from other parties. Making allowance for all these, we can discern a marked character in his studies. The list of books taken out by him has been extracted by Professor Masson; and I here give it entire.

The first entry is for January 2, 1794; the book is not very legibly given. Jan. 20; Ferguson's History of Civil Society. Feb. 6; Alison On Taste. Feb. 13; Rousseau's Emile, vol. 1. Feb. 20; Emile, vol. 2. March 3; Cudworth's Morality. March 6; Gregory's Essays. March 13; Smith's Theory (of Moral Sentiments), vol. 1. April 3; Smith's Theory, vol. 2. April 10; Massillon's Sermons. April 30; Reid's Intellectual Powers. This last was probably returned in a week, and he would then leave town. No books are borrowed in the recess.

The second Divinity session (1794-95), shows the first entry in November 20; Ferguson's Philosophy, vol. 2. Without giving dates, I will quote the rest: Discours par Rousseau; Mélanges de Litterature; Hume's Essays, vol. 1; Jortin's Dissertations; Bolingbroke's Dissertations; Hume's Essays, vol. 2 (four weeks after vol. 1); Sermons par Massillon; Alison on Taste; Smith's Theory, vol. 2; Kames's Sketches; Theological Repository, vol. 1; Gregory's Sermons; Necker's Religious Opinions; Platonis Opera, folio; Hakewell's Apology (a very peculiar book); Campbell on Rhetoric; Platonis Opera; Campbell on Rhetoric (permission to have Plato and Campbell together); Ferguson's Essay; Oeuvres de Maupertuis; Hume's

Essays. This brings us down to August 12, showing that Mill resided in Edinburgh this summer, and was absent only in September and October, being then probably at Northwater Bridge.

The third session opens with the entry November 26, Oeuvres de Fénélon; Plato's Works; Ferguson's Philosophy; Plato's Works; Ferguson's Philosophy; Plato's Works (for six weeks an alternation of the two); Massillon's Sermons; Oeuvres de Fénélon; Massillon; Plato's Works; History of Man; Plato's Works—April 27, 1796, last entry of the session.

He has now made three full sessions in Divinity. His fourth and last might be what is called a partial session—two or three weeks, during which his principal duty is the delivering of the last of his prescribed discourses in the Hall. Only three entries occur:—December 26; Locke's Works, Vol. 2. December 29; Whitly on the Five Points. January 2; Abernethie's Sermons. The two last may have had some bearing on his discourses.

The foregoing list speaks for itself. Mr. Masson remarks that it is very unlike the lists of the other Divinity students. Mental Philosophy is the foremost subject of his choice: but it surprises us that he had not yet become possessed of such leading authors as Locke and Reid. There is also a beginning of his studies in Historical and Social Philosophy; a dead set at Plato; and an attempt upon the flowery vein of Massillon. He is already a fair French scholar.

A word or two now on his college companions. I doubt if there were ever at one time gathered together in one spot such a host of young men of ability as were about Edinburgh College in the last ten years of the century. Thomas M'Crie as well as John Leyden sat with Mill in the Senior Greek Class in 1790-1. Brougham was at college at the same time, although young, and must have then commenced his intimacy with Mill.* Jeffrey should have gone to Edinburgh College for his whole education, but seems to have attended only the class of Law. Whether Mill knew him here I cannot say. Thomas Thomson, the chemist, was a class-fellow, both in Arts and Divinity, and was all through life an intimate friend. Sir D. Brewster knew Mill, but their college careers only touched: Mill ended in the Divinity Hall in the year that Brewster began. Another of Mill's life-long friendships may have commenced here: Professor Wallace began to study in Edinburgh at that time, although mainly in the scientific classes. In the *Life of Con-*

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* Brougham's flighty biography shows that he attended Playfair in 1792-3, Mill's third year.

stable is given an interesting sketch of his first start.* Among many other names of after-repute may be mentioned also Mountstuart Elphinstone. We may readily imagine Mill's conversational encounters with such men, but we have nothing to record as to facts. An Aberdeen life in the same years, would, I am sorry to say, have been a dull affair. They were the closing years of Beattie and Campbell in Marischal College; and the young men of the period were undistinguished.

Having thus presented his college life in unbroken narrative, because of the continuity of the recorded facts, I may as well go on to the date of his being licensed as a preacher, making use of the records of the Presbytery of Brechin, to which I have been allowed to refer. He finished the Divinity Course, in January, 1797, and had now to present himself to be taken on trial for license. The first entry in the Presbytery records is on the 19th of October, 1796, at which date he was allowed to make an appearance in anticipation; being introduced by his friend, Mr. Peters. At the subsequent meeting in December, notice is given by Mr. Peters, that at the next ordinary meeting, Mr. James Mill, student in Divinity, upon producing proper certificates, be admitted to his questionary trials. On the 1st of February, 1797, he accordingly appears; produces his certificate from the Professor of Divinity, that he had regularly attended the Divinity Hall and had delivered the usual exercises with approbation, and that his conduct had been suitable to his views. He was then subjected to questionary trials, or, as we call it, a *vivâ voce* examination, and gave satisfactory answers. Whereupon he had to be reported to the ensuing Synod, which had to authorise the Presbytery to proceed with the rest of his probationary trials. He is not mentioned again in the Presbytery books till the 28th of June, although in the meantime the subjects of some of his discourses must have been prescribed to him. He delivered his "Homily" on Matthew v. 8 ("Blessed are the pure in heart, for they shall see God"), and more interesting still his "Exegesis" (Latin) on the foundations of Natural Religion, "Num sit Dei cognitio naturalis ?" The Presbytery is satisfied, and farther prescribes, as a "Lecture," the 14th chapter of John's Gospel. On the 30th August, he delivers the Lecture, together with his "Exercise in addition" on Galatians ii. 20 ("I am crucified with Christ," &c.). Both are approved of, and there are prescribed farther Revelation xxii. 14 for a popular sermon, the fifth century for a discourse on Church History, and the 23rd Psalm in Hebrew to be explained. On the 11th of October, he gives the popular sermon. An unexplained blank of a year occurs between this appearance and his next, which was the last. On the 4th of October, 1798, he is examined upon his knowledge of Chronology and Church History, and of the Hebrew and Greek languages, and was approved. [There is a curious want of tallying with the previous prescription]. "And the Presbytery having taken the whole of his trials under their consideration, Did and hereby Do unanimously approve and sustain them, and therefore after he had given satisfying answers to the usual Questions, and subscribed the Confession of Faith and Formula, *coram*, and after Act Eight of the Assembly, 1759 [directed against obtaining a church by Simony] was read to him, the Presbytery Did and hereby Do Licence him, the said Mr. James Mill, to Preach the Gospel of Jesus Christ. The Moderator [his friend, Mr. Peters] having given him suitable Directions, the above was intimated to him."

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* Constable's description of Hill's book shop, in Parliament Close, where he and Wallace were fellow-shopmen, and which was frequented by the professors and clergy (Burns came there when in Edinburgh), can be used as a help in our imagination of James Mill's Edinburgh life. Most probably he here became acquainted with Wallace; and, at all events, their intimacy would bring him here. Wallace was an admirable mathematician, but was neither a metaphysician nor a sceptic. James Mill's sociability was much wider than his tastes and opinions.

Being now qualified to preach, he would display his powers, in the first instance, in the churches of his own neighbourhood. Very few records of his preaching exist; but there is good evidence of his officiating in the church of Logie Pert. My informant, the last survivor of the Barclay family, distinctly remembers hearing him on one occasion; and knows of his preaching twice. She remembers his loud clear voice, which filled the church; that his text was from Peter; and that the generality of the hearers complained of not being able to understand him. Other traditions concur in regard to his unpopular style. Sir David Brewster said to myself, "I have heard him preach; and no great han' he made o't." His discourses would no doubt be severely reasoned, but wanting in the unction of the popular evangelical preacher.*

It is no easy matter to trace his movements and occupations from 1790 to 1802, in that part of his time not spent at college. That he acted as private tutor in various families must be received as a fact, but the particulars handed down are very confusing. The best attested of these engagements is that connected with the Fettercairn family. He certainly acted as tutor to Miss Stuart; of her he made mention in after years in conversation with friends in London. She was three years younger than himself; being fourteen at the time he went to college. In the year 1797 she was married, being then twenty-one; and we may reasonably suppose that her connection with Mill as a tutor may have ceased some time before that event. If she was done with him at eighteen, in 1794, he must have taught her soon after he went to college; either at Fettercairn House, in his vacations, or partly there, and partly in Edinburgh while attending classes.* At any rate it must have been at an early stage of his studies. She had reached an interesting age, and made a lasting impression on his mind. He spoke of her in later years with some warmth; putting it in the form of her great kindness to him; although, if we may believe the traditions, the first source of all the friendship displayed towards him by the family was her mother.

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* I cannot account for John Stuart Mill's uncertainty as to whether his father had been licensed to preach. I have been told by members of the family that their father's sermons were known to be in the house. What became of them no one can tell.

The romance that surrounds this lady is now well known. Lockhart gives the incidents of Scott's passion for her. In marrying the son of the banker, Sir William Forbes, she became the mother of James David Forbes, the distinguished Natural Philosophy Professor of Edinburgh. In the *Life of Forbes* is given her portrait along with her husband's; and one could easily fall into the opinion that her cast of expression and mind is what was reproduced in the philosopher, as he unfortunately participated in her constitutional delicacy. Beloved of so many gods, she died young.

It is thus certain that Mill resided for a certain time in the family as Miss Stuart's tutor: it is equally certain that the house was always open to him as a guest. He might walk across any day from Northwater Bridge to Fettercairn House, a distance of five miles, and he was counted upon when company were in the house.

But now as to his other tutorial engagements, say from 1795 to 1802. One tradition that deserves respect, as being supported by the evidence of Mr. David Barclay, and confirmed from at least one other source, is that he was for some time tutor in the family of the Marquis of Tweeddale. It happens that the present head of the family from his great age (being born in 1787) would in that case have been his pupil. I took the liberty of writing to the Marquis, stating the tradition; he responded most courteously, and took pains to explain to me how his education had been conducted; from which it was evident that he never had Mill as his tutor. I am obliged, therefore, to regard this tradition as a mistake, although I cannot account for its origin.

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* I gather from Lockhart's *Life of Scott,* that Sir John and Lady Jane Stuart lived for a long time secluded (that is, in their country house), but that several years before 1797 they resided in Edinburgh part of the year; no doubt to educate and bring out their daughter. Mill would thus be very much with them both in summer and winter during his first college years. He was therefore not a dependent upon their mere bounty.

One engagement, not mentioned in any tradition, I have been able to trace out by the assistance of a daughter of Professor Stuart of Marischal College (born in 1792, and still living), who distinctly remembers having seen James Mill in Aberdeen. This was to me an entirely novel circumstance. No one had ever heard him say that he had been in Aberdeen, or mention any fact that implied it. As the lady in question was the niece of Mr. Peters, and often visited his manse as a child, she probably saw Mill there; but she farther states that she knew him as tutor in Aberdeen, in the family of Mr. Burnet of Elick, one of the branches of the family of Bishop Burnet. At the time when I first received this information, one of the sons that would have been his pupils was still alive. From him I received this statement: "It is quite true that *a* Mr. Mill was private tutor in my father's family, whom I am aware my father held in high estimation, and kept up an intimate correspondence with for years afterwards, but I am sorry to say that my memory does not serve me sufficiently to give any reliable information, and I was not even aware of the Mr. Mill in question being the father of John Stuart Mill." That an intimate or extensive correspondence was kept up I should very much doubt; but if the letters are ever forthcoming they will be a valuable contribution to the biography, assuming that there is no mistake. A farther confirmation, however, occurs in Mill's own letters to Mr. Barclay, who had a brother that studied in Marischal College. Mill promises to introduce this brother to "his friends in Aberdeen." Now he might have had one or two friends in Aberdeen, without ever being there; but the unqualified plural seems to imply that he had made friends there by residence.

This tutorship must have been subsequent to his leaving the Divinity Hall in the beginning of 1797; for although he might have been tutor to families in the south while attending college, seeing that the high families often wintered in Edinburgh, he could not have been a tutor in Aberdeen so long as he was a student. His introduction to Mr. Burnet was, without doubt, through Professor Stuart. The professor's daughter relates a tradition to the effect that Mill threw up this appointment suddenly, owing to an affront given him at a dinner party; but this cannot be received if we are to trust Mr. Burnet's own statement.

On the above supposition as to the time of this engagement, Mill would have been in Aberdeen after being a licentiate of the church; and I therefore thought it worth while to search the records of the Kirk Session of Aberdeen, in which a regular insertion is made of the preachers and texts every Sunday in the three parish churches. I found his friend, Mr. Peters, twice mentioned, but Mill's name does not occur. There were other churches, called chapels of ease, but their records I have not seen.

Thus the history of his tutorships, which must have been his first source of income, is left very vague; and so also is his local habitation, for a great part of several years of his life. He must have preached in Edinburgh, to have been heard by Sir David Brewster, whose time was divided between Edinburgh and his native place, Jedburgh, which was quite out of Mill's beat.

I will now present in one connected view the notices of Mill "at home," or in his family at Northwater Bridge. He would not reside there continuously any year after first going to college, but he was known to be there occasionally in vacations, and on longer or shorter visits.

Taking our stand about 1795, his father and mother were past middle age, and not "what they were." Perhaps as yet there was no failure in their circumstances, but the decline was not far off. William was twenty, and had for years been in his father's shop; another of his workmen is identified at that date, a married man, who lived apart from the Mills. These would probably be his usual complement of workmen; although it is admitted that he might have three men at work. The household would thus be made up of father and mother, James (when at home), William, and May (eighteen), on whom would fall a chief part of the housework, as well as the shoe-binding for the shop.

The west room of the house contained two beds along the right hand wall; in that room the mother hung up a canvass curtain ("cannass" it was called, being what is laid on the threshing-floor to keep the corn together); thus cutting off from the draught and from the gaze, the farther end of the room, including James's bed, the fire, and the gable window. This was his study; and the whole arrangement was vividly retained in the memory of contemporaries. Here he had his book shelves, his little round table and chair, and the gable window sill for a temporary shelf. He spent great part of his day in study. He had his regular pedestrian stretches; one secluded narrow glen is called "James Mill's walk." He avoided people on the road; and was called haughty, shy, or reserved, according to the point of view of the critic. He went often in the evening to tea with the Barclays, being thoroughly at home there. Besides the minister, he had as friends some of the most important people in the parish, as for example, Lord Kintore's factor.

His meals were taken alone in his screened study; and were provided by his mother, expressly for his supposed needs. Among the other members of the family, who would take their meals in the kitchen, there is said to have been a line of demarcation on the score of rank, but authorities are not agreed as to how it was drawn. Some accounts represent the mother as having, in her dignified and luxurious fashion, a table apart; others say that she and her husband were at one table, and the workmen with the two younger children at the other.*

The latest recorded incident of his career in Scotland is his being defeated in his attempt to become minister of the pleasant parish of Craig, a long narrow strip of uplands lying on the coast between Montrose and the Bay of Lunan. Mill could have taken care of such a parish, and yet have found time for his favourite studies, working his way to authorship, and perhaps a chair in a university. The patronage was in the hands of the Divinity professors of St. Andrews, who might be expected to favour one of their own pupils; but in this case the contest turned upon other considerations. Mill was said to rely on Lady Jane Stuart, whose family, all-powerful in Fifeshire, might have influence with the St. Andrews professors. On the other hand the Rossie family (chief in the parish itself) preferred James Brewster, the brother of Sir David.

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* I was somewhat pained to hear an intelligent old man, a relation, and the son of a journeyman, of James Mill, speak very strongly of his wife's luxurious as well as slovenly habits. On the other hand, the husband, in his rigid piety and simplicity, may have been unreasonably stingy. He regularly fasted on Sunday till he returned from church. It is not likely that the less strict members of the household would breakfast very sumptuously on Sunday mornings. He had an incontinent habit of whistling in a low "sough," while at his work; and the neighbours remarked that he was never known to give way to it on the Sabbath day. He was very strict in all observances of a religious nature; but as regards the discipline of the children, he and his wife were (in their eldest son's judgment) blamably lax.

In the dearth of characteristic illustrations of Mill in his home relations, the following anecdote may be excused. One day his sister coming to serve his dinner, found him inclining his little table to his lap. She exclaims, "Hoo can the things *sit* there?" He replies, "If they winna *sit*, try if they'll *stan'*." It may be going too far to interpret this as showing his early resolution to conquer Scotticisms, which he carried out in after-life with admitted success.

As the vacancy did not take place till June 1803 (by the resignation of the minister), more than a year after Mill left Scotland, the contest must have taken place in anticipation, and must have been virtually decided against him. It is said that the disappointment was the immediate cause of his going to London; a mere guess. Brewster was a man far more acceptable to an ordinary congregation than ever Mill could have been. With his friends, however, he would soon have found a parish. One third of the parishes were in the gift of the Crown, and Sir John Stuart's influence would have been enough to secure one for him. A. BAIN.

(To be continued.)

IX.—CRITICAL NOTICES.

Psychologie vom Empirischen Standpunkte, von DR. FRANZ BRENTANO, Professor der Philosophie an der K. K. Universität zu Wien, Erster Band. Leipzig, 1874.

THIS is a work which no psychologist should overlook. Its author is an obviously competent inquirer,—one both conversant with the investigations of others and capable of independent personal research. While belonging to the empirical school he shows his appreciation of its most distinguished masters, not by an unquestioning acceptance, but by a keen and continuous criticism of their teaching. Those from whom he has learned most are Mill and Bain, Fechner, Lotze, and Helmholtz; they are also those whose views he most frequently endeavours to correct or contradict. He has discussed in a most elaborate manner the important and comparatively neglected subject of psychological method; he appears to be well acquainted with the physiology of the brain and nerves, but, while sensible of the help which it may yield to psychology, decidedly opposes those who would base on it that science, and who either neglect or depreciate self-consciousness; he can fairly claim considerable novelty of doctrine, which is to a certain extent a merit even when what is new is not true; and, in a word, he occupies within the school to which he belongs a decidedly independent position. His style is clear, direct, and pleasant,—very unlike that in which German works on psychology are generally written. We hope the following analysis of his work, so far as it has yet appeared, may help to bring it more widely under the notice of British students of mental science. They will certainly not fail to find it interesting and instructive, even should they, like the present reviewer, deem not a few of its positions insufficiently established.

The work is to consist of six books. Two only are contained in the volume which has been published; the first treats of psychology as a science, or, in other words, of its definition and method, and the second of psychical phenomena in general. Of the four books unpublished, one is to treat of the characteristics and laws of conceptions; another of judgments; a third of the emotions and will; and the last is to discuss how the physical and psychical in man are connected, and whether the psychical life can outlast the dissolution of the body. Our author has still, therefore, nearly the whole science of psychology to expound. It is difficult to see how he can successfully accomplish this, as he proposes to do, in another volume.

He defines psychology both as "the science of the soul" and "the science of psychical phenomena," but prefers the latter definition, because it involves no metaphysical presupposition, yet does not imply the non-existence of a spiritual substance underlying spiritual qualities. He insists strongly, however, that in one sense physics and psychology are not alike conversant with phenomena, since physical phenomena—the objects of external perception—are not in themselves what they appear to be, while psychical phenomena—the objects of internal experience—are just what they appear to be. His definition of what is at present meant by the soul—"the substantial support of conceptions and other states founded thereon which, like conceptions, can only be apprehended through inner experience"—is not one, perhaps, which will very generally command the assent either of those who affirm or of those who deny the existence of the soul as a distinct agent. In expounding his definitions he takes occasion to combat the view that there is a special science to treat of the relations between physiology and psychology,—a science called by Fechner psychophysics, and by Wundt physiological psychology. He argues that there must be disputes as to the boundaries between psychology and psychophysics on the one hand, and psychophysics and physiology on the other, no less than between physiology and psychology, so that once begun there can be no limit to the process of introducing sciences between sciences; and that the work assigned to psychophysics is work which neither physiology nor psychology can leave undone, since each must so far look to, and borrow from, the other. Does not this reasoning proceed on the assumption that psychophysics treats of the relations between two sciences, whereas it really treats of the relations between two classes of phenomena, bodily and mental phenomena? As phenomena cannot be multiplied *ad libitum*, the fear of being required to multiply sciences *in infinitum* is imaginary. Besides, neither Wundt, Fechner, nor any other person claims for psychophysics the honour of being an independent and fundamental science. All that is maintained is that the relations between body and mind are so manifold, complex, and important as to demand a comprehensive and methodical investigation, which, with its results, may as properly be designated a science as many other studies which no one hesitates to call sciences. Prof. Brentano also objects to the celebrated summary of psychological problems given by Mr. Mill in his *Logic*, B. VI., ch. iv., that it omits the question which had the greatest interest for the older psychologists, viz., that of the immortality of the soul. He himself holds that psychology has "a special and incomparable interest" because to it falls the duty of instructing us as to immortality, "as to the hope of another life and participation in a more perfect state." Few British psychologists of any school will agree with him on this point. Ever since psychology has come to be treated among us as a branch of inductive science it has been acknowledged on all hands that the belief in immortality must be rested mainly not on psychological but on moral and religious considerations.

Our author devotes the next three chapters to the method of psychology. He first insists on the interest and importance of the subject, and then indicates and characterises the sources of psychological experience, viz., internal perception; memory; external expressions and signs; the study of simpler minds in children, savages, those born devoid of particular senses, and animals; the observation of mental diseases; and the study of extraordinary products of mind, great or singular events, remarkable persons, &c. (ch. ii.) In regard to internal perception he takes up a position which he claims to be entirely original. He maintains that internal perception is the primary source of our knowledge of mind, but that internal observation is impossible, as the objects of internal perception fade away when attention is directed to them; that Comte in France, Maudsley in England, and F. A. Lange in Germany have rightly held that there can be no internal observation, but wrongly inferred that there is no internal perception. The worst consequences, he thinks, have flowed from the neglect of this distinction. Many have been deterred from the study of mind at the very outset by finding themselves incapable of a process which they were taught to regard as of essential importance but which is inherently impossible; others who have persevered have been led to take physical phenomena, such as belong to the phantasy, for psychical. Professor Brentano does not seem to his present reviewer to have established his conclusion. Probably a stronger case could be made out against external observation than he has drawn up against internal observation, owing to the very great difficulty there is of showing that the mind ever gets fairly beyond itself, ever has anything else than its own states to which it can attend. And, perhaps, it would not be difficult to show that in order to render his own view plausible, he has been compelled to confound physical and psychical phenomena at least as badly as the psychologists whom he censures. At the same time, we readily acknowledge that on a subject so important as the question whether internal observation is possible or not, a view at once new and reasoned, like that of Brentano, is profitable to science even although erroneous. It is an advantage that psychologists should have the possibility which it presents distinctly before them and be forced to take it into account. We should be glad to see it receive in the pages of MIND a separate and adequate examination, and regret that we must here leave it undiscussed.

The third chapter treats of the induction of the most general psychical laws. The affirmation of Bacon that the mind ascends gradually from the lowest to the highest laws is denied; it has not been found true in the natural sciences, and is not to be accepted in psychology. We are told to seek the principle of the primary division of psychical phenomena, and of their distribution into fundamental classes, without which it is vain to attempt to discover their laws of succession, in the consideration of their general characteristics. The circumstances which facilitate their classification, such as the indications afforded by language, the obviously small number of genera, and the presence of them all in the individual mind, are pointed out. Then, the difficulty of classifying them, notwithstanding these advantages, is dwelt on and traced wholly to a single source,—the impossibility of inner perception becoming inner observation. This, according to Brentano, is the cause why psychologists differ so much as to what are the fundamental classes of psychical facts. We must decidedly dissent from this view. The true causes are to be sought in the phenomena themselves. They are, perhaps, chiefly these two: first, the difficulty of distinguishing and the impossibility of defining ultimate facts of any kind; and, second, the indescribable variety of forms in which the ultimate facts of mind manifest themselves. The latter is the more influential. It is not difficult to distinguish a particular thought from a particular feeling, but it is enormously difficult to find a distinction or distinctions which will hold not merely between some particular thought and some particular feeling, but between any and every thought and any and every feeling, between thought as thought, and feeling as feeling, owing to the countless forms, shades, changes, and combinations, of both thought and feeling. In confirmation, I may refer to the fact, that of the eight distinctions which Dr. Fleming, following the guidance of M. Paffé, has laid down in his *Manual of Moral Philosophy*, as discriminating thought from feeling, no fewer than seven are untenable for this reason. They distinguish some thoughts from some feelings but not all thoughts from all feelings. After remarking on the difficulty of psychical analysis, our author devotes the rest of the chapter to showing that the highest laws of the succession of psychical phenomena are of a merely empirical character, and that a more thorough investigation of their physical conditions is greatly needed, while it is vain to attempt to resolve them into or deduce them from physical laws. He subjects to a most trenchant criticism the attempts of Horwicz and Maudsley to base psychology on physiology. The former, it seems right to mention, has vehemently protested against the representation given of his views (*Phil. Monatshefte*. Bd. x. H. 6-7), and Brentano has replied (Bd. xi. H. 4).

The main subject of the last chapter of the first book is the want of exactness in the highest psychological laws. The views of Kant, Herbart, and Wundt as to the applicability of mathematics to psychical phenomena are discussed, but not with the thoroughness desirable. The attempt to refute the opinion of the last that the fact of psychical phenomena differing in intensity must facilitate their reduction under the sway of mathematics is particularly insufficient. On the other hand, the criticism of Fechner's statement of Weber's law is both ingenious and suggestive, and seems to prove that the only psychical phenomena which can be brought under that generalisation—those which are excited in the senses by external causes—can be so only in an imperfect and relative manner. While the difficulty of raising psychology to the rank of an exact science is brought into due prominence, induction is at the same time maintained to be capable of rising to laws of comprehensive generality from which special laws may be reached by means of the deductive and so-called inverse deductive or historical method.

The Second Book begins with a chapter "on the difference between physical and psychical phenomena,"—a subject which is rightly judged to deserve a thorough investigation, both for its own sake, and because the views of psychologists regarding it are so confused and discordant. Brentano starts in his investigation from the position that every psychical phenomenon either is an act of conception or presupposes an act of conception, the term conception (*Vorstellung*) being understood to comprehend whatever appears as an object to the mind in perception, apprehension, imagination, or abstraction. He combats the counterposition that there are feelings which rest on no conceptive basis. He defends the negative distinction between physical and psychical phenomena, viz., that the former are extended and the latter unextended, first against those who deny that all physical phenomena are extended and next against those who deny that all psychical phenomena are unextended; and, at the same time, maintains that Bain errs in supposing that there is no property positively characteristic of all psychical phenomena. What he calls the *intentionale Inexistenz* of an object—the dualism of subject and object in consciousness—appears to him to be at once common to all psychical phenomena and exclusively peculiar to them. Other distinctions are that psychical phenomena are only perceived directly through inner perception and physical phenomena only through external perception; and that the former alone have an actual, while the latter have a merely phenomenal existence. The distinction drawn by H. Spencer that psychical phenomena only appear one after another, whereas many physical phenomena may co-exist, is rejected. The general impression which this chapter leaves on the mind of the reviewer is that a considerable number of its particular criticisms are just, but that the discussion as a whole is not successful, because these two essential questions are uninvestigated, viz.: Are perceptions not so inseparable from the act of perceiving as to be, in some measure at least, if not entirely, *psychical* phenomena? and, Are there really any such phenomena as those which our author frequently speaks of, any "*physical* phenomena in the phantasy?"

Three chapters on "internal consciousness," which is surely a pleonastic expression, come next. The second chapter is a most interesting and elaborate discussion of the question, Are there unconscious psychical acts? put very unnecessarily in the paradoxical form, Is there an unconscious consciousness? Our author, after examining all the facts and arguments which have been adduced in favour of an affirmative conclusion, answers with a decided "No." As we have space neither to summarise nor criticise his arguments we have no right to express an opinion on his conclusion, but we may be allowed to say that no one should henceforth venture to treat of the subject of unconscious mental modifications without a careful study of this important chapter. The one which follows is an attempt to explain what is implied in consciousness. The simplest psychical act is maintained to have a twofold object, a primary, as, for example, a colour or tone, and a secondary, as, for example, seeing or hearing, and the consciousness of this secondary object is maintained to be essentially threefold, or, in other words, it realises itself as conception, judgment, and feeling. This strange analysis supplies Brentano with the principle of his classification of psychical phenomena. The fourth chapter is a defence of "the unity of consciousness," the expression being understood to denote neither the simplicity nor the indivisibility of consciousness, but merely the fact that however numerous, complicated, and developed our psychical acts may be, they are always given in consciousness as the acts of one real being. He refutes the arguments of F. A. Lange and C. Ludwig against the unity of consciousness in this sense.

The last five chapters of the volume are all devoted to one subject—the distribution of psychical phenomena into their fundamental and most comprehensive classes. There comes, first, a survey of the chief classifications which have been attempted from the time of Plato downwards (ch. v.); next, a brief general exposition of the classification proposed by the author himself, which is into phenomena of conception, judgment, and love and hate (ch. vi.); then, the endeavour is made to establish and defend this classification by proving, on the one hand, that conception and judgment are two fundamentally distinct kinds of psychical acts (ch. vii.); and, on the other hand, that there is no essential or primordial distinction between feeling and will (ch. viii.); and, finally, the three classes of phenomena are referred to the three moments of internal consciousness, and their natural order and relationship to one another are determined (ch. ix.). Prof. Brentano does not conceal that he is proud of his classification, and seems to derive considerable enjoyment from anticipation of the *Kopfschütteln* which he foresees it will occasion. That is fortunate, because, we fear, there are likely to be more shakes than nods for what is original in it. The reduction of feeling and will to the same class of phenomena will, of course, command the assent of those who have already reached that conclusion; but it will probably convince few who have accepted the generally received threefold division of mental attributes into intellect, sensibility, and will, only after a careful investigation of its grounds. The really distinctive feature of the classification,—the radical separation of conception and judgment,[*] —is almost certain to meet with extremely little commendation. The ingenuity displayed in its defence is considerable, and no one who follows the laboured course of argumentation in chapter vii. will accuse the author of having taken up without long deliberation the position unhappily suggested to him by certain observations of J. S. Mill on the nature of predication and belief, yet a large part of that argumentation must appear to the majority of his readers logically to tend towards a conclusion directly opposed to that which he has drawn from it; to imply that the distinction between conception and judgment, whenever they are properly correlative, instead of being great and fundamental is about the smallest and vaguest which can exist between any two acts that can be distinguished at all; to indicate that a conception is only, as has been said, a contracted judgment, and a judgment only an expanded conception. Then, as to the portion of his reasoning which is relevant, few will be disposed to accept the views as to the nature either of conception or judgment on which it is founded. He congratulates himself that they have led him to original conclusions in Logic, which he promises to expound in a special work, after the completion and publication of his Psychology, but these conclusions are so very original indeed that they are far from likely to lessen any distrust which may have been already awakened by an examination of their principles in themselves. Among them are the following:—1st, *Every syllogism has four terms*; 2nd, *A negative conclusion must have two negative premisses*; and 3rd, *Even when the conclusion is affirmative one of the premisses must be negative.* If these doctrines can be made out, obviously all logicians from Aristotle downwards have been sheer impostors, but the probability is great that they cannot be made out, and that the views as to the nature of conception and judgment from which they have been derived are erroneous. We shall look for Prof. Brentano's Logic with the most lively curiosity, and we very cordially wish that he may bring to a prosperous conclusion the Psychology which he has, in some respects, so happily begun.

R. Flint.

F. Lussana e A. Lemoigne: *Fisiologia dei Centri Nervosi Encefalici.* 2 vols. Padua, 1871.

The immense activity in all the schools of Europe which has, since Gall, been directed to the study of the functions of the brain, has produced but very meagre results. This is no doubt greatly due to the extreme complexity of the cerebral mechanism and the delicacy of its elements—two conditions which greatly interfere with experimental research; but it is also due to an imperfect conception of the principles which should guide such research. To suppose that organs which normally respond to stimuli so delicate and variable as the waves of molecular movement excited in a semifluid nerve, will reveal their normal functions when lacerated, pricked, galvanised, &c.—or to suppose that slicing away portions of the brain will yield more than negative evidence, and that needing very rigorous control, is to obstruct research with facts which obscure our vision, instead of illuminating it. Amid the mass of experimental evidence with which cerebral physiological literature is crowded there is extremely little which has any value; and yet it is only by experiment, rightly conducted and interpreted, that we can hope to complete and control the subjective analysis of Psychology. Physiologists and psychologists must converge their efforts. This is daily becoming more recognised. Meanwhile there is this drawback: physiologists are too much under the influence of traditional dogmas respecting Intelligence, Sensation, Volition, &c., and psychologists lend too willing an ear to the statements of physiologists, accepting with too easy a faith the premature conclusions of unverified research. Instead of meriting the old reproach of neglecting the physical basis of mind, the psychologists of to-day, for the most part, seem to me only too credulous of what physiologists tell them respecting that basis; and the successors of men who explained mental phenomena in supreme disregard of the nervous system, are now localising these phenomena in 'cells' and 'convolutions,' in supreme disregard of all the rest of the organism.

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[*] As regards conception, our author is unfortunate in his language. His use of the term *Vorstellung* is extremely vague, confused, and self-contradictory. It is wider and looser even than Herbart's or Lotze's. In fact, the term, as employed by him, is not only incapable of accurate translation into English or any other language, but, corresponds to no generic fact, no peculiar faculty, and no distinctive province of mind.

We are still a long way off a satisfactory theory of the brain; we have not even mastered its anatomy. Meanwhile every work is welcome which brings any positive evidence or suggestion; and such a work is the one which I wish to introduce to the readers of MIND. Had the scientific journals been sufficiently alert, I might have been spared the trouble; but although this work has been four years before the world, and although it was crowned by the Belgian Academy, and therefore carries its credentials with it, the mere fact of its being written in Italian seems to have excluded it from notice. I do not remember to have seen it once mentioned in any English, French, or German periodical.

The first volume is devoted to the cerebrum and mesencephalon. The authors begin by calling attention to the very different results which are observed during what they call the first and second experimental periods: the first comprising that variable period of hours, days, and even weeks, during which the animal has not recovered from the perturbations produced by the operation; the second, which they justly regard as the only significant period, is that in which the mutilated organism has once more returned to something like its normal activity. Neglect of this distinction causes many contradictory facts to be brought into the discussion. Making no allowance for the shock of the operation, for the anæmia, local congestions, and turbulent sensations, which follow removal of the cerebrum, experimenters attribute all the phenomena they observe to the simple absence of cerebral agency. Hence the general agreement among physiologists that the cerebrum is 'the organ' of sensation and volition; and that its removal is followed by a somnolent stupidity and absence of spontaneity. It *is* thus followed. But only during the period of perturbation. Birds, reptiles, and fishes which survive this period and enter on the second period, show that after removal of the cerebrum there are still sensations, instincts, volitions and spontaneous movements having precisely the same character as those of unmutilated animals. The experiments of our authors, and their criticism of the current interpretations, are well worthy attentive consideration. They first expose in detail what are the observed facts consequent on particular operations; and having thus laid an experimental foundation, they attempt to draw conclusions from it. They show what are the effects of removing the hemispheres, first on the intelligence, then on the sensations, then on the movements and volition.

They next pass to the effects of unilateral removal on unilateral perception: as, for example, the blindness of the left eye after removal of the right hemisphere. Removal of both hemispheres does not destroy the *sensations* of sight—as they and others have proved; but although the animal can *see*, and avoid objects, after loss of both hemispheres, it cannot *perceive* the objects; and the blindness of the left eye is therefore shown to be a blindness of perception.

A brief, and not very trustworthy chapter on the histology and development of the brain succeeds. To this is added a good account of the olfactory lobes; and a survey of the structure of the brain in fishes, reptiles, birds, mammals, and man. In the general considerations with which the authors sum up their exposition of the cerebral functions, they adopt what may be called a phrenological stand-point, though they speak with contempt of phrenologists. Instead of lumping together all instincts under one indivisible principle, and all intelligent actions under one indivisible intelligence, they insist on distinguishing the concretes expressed in these abstractions, and endeavour to localise by experiment the organs operative in each. Whereas Flourens, on the faith of his experiments, maintained that when one sensation, one instinct, one volition, one intelligent act vanished, all vanished, and when one re-appeared all re-appeared, our authors abundantly show that some sensations and some instincts, nay some intelligent acts, disappear while others remain.

The relations of the optic thalami to motion and vision are then examined; and to this succeeds a chapter on the corpora quadrigemina. A survey of the mesencephalon throughout the vertebrate division concludes the first volume. The second is devoted to the peduncular system (which the researches of Meynert have lately brought into prominence), and the cerebellum; concluding with a critical examination of the chief theories propounded in explanation of the cerebellar functions. The mass of experimental evidence here adduced will some day be of great service to physiologists; but at present we are still without the guiding conception which can enable us to interpret the evidence. All that we can learn meanwhile is the kind of disturbance produced in the mechanism when certain parts of it are injured or removed. In this way the observations of our authors are significant in the case of the dove which they kept alive three years and a-half after complete removal of the cerebellum; in this bird all the normal instincts were observed *except* the sexual, and all the normal activities *except* that of muscular co-ordination of the limbs and trunk.

It being simply my purpose to call attention to this work, I abstain from all criticism of its statements and opinions, which could only be ventured on profitably in a more elaborate notice. One remark is all that I will add, namely, that negative evidence is not to be confounded with positive evidence: in other words, that the observation of some function being perturbed or destroyed after the injury or destruction of a part of the brain, is no more evidence that this part is the 'organ' of the lost function, than the disturbance or cessation of a complex mechanism when a pin or wheel is removed, proves the pin or wheel to be the mechanical agent. But on the other hand, the continuance or re-appearance of a function after the destruction of a part, is positive evidence that the part in question is not the organ of this function.

G. H. LEWES.

Clinical and Physiological Researches on the Nervous System. (Reprints). No. 1.—*On the Localisation of Movements in the Brain.* By J. HUGHLINGS JACKSON, M.D., F.R.S., Churchill, 1875.

The author here reprints a paper (25 pp.), on the anatomical and physiological localisation of movements in the brain by study of paralysis and convulsion, which appeared in the *Lancet* in 1873; adding in an appendix two reports by Dr. Gowers, confirmatory of the views expressed in the paper, and in a somewhat elaborate preface (xlviii pp.), drawing out the general import of the series of investigations on the brain and nervous system which he has published from time to time in the last ten or eleven years. The reprint is extremely opportune both in itself and as giving occasion for this statement of the author's position in relation to the more recent experimental labours of Hitzig and Ferrier. The author is remarkable for the careful heed he has given throughout his inquiries to the latest results of psychological science, while he has at the same time a singularly clear apprehension of the limits of his function as a clinical and physiological observer. No recent piece of work from the physiological side is more worthy of the attention of psychologists than this reprint with its weighty preface.

The fundamental position maintained by the author—a position which he has held from the beginning, but which, as far as regards expression, has become more clearly defined in the course, of his researches—is that the physical substrata of mental states are sensori-motor processes, or, in other words, that the organ of mind is made up of processes representing impressions *and* movements. This amounts to saying that the higher and highest parts of the nervous system, known to be involved in conscious mental action (intellection, feeling, volition), are built on the same ground-plan as the lower parts with their function of simpler reflex action; and the author puts forward the view as the only one consistent with the doctrine of organic evolution. He prefers, for his own part, to call these sensori-motor processes the "anatomical substrata" of mind, but is careful to add that he thereby implies nothing as to the metaphysical relation of mind to the nervous system, the expression being reconcilable with very different opinions (some of which he cites) on that head. What he does seek most positively to convey is that in the brain there can never be question of aught but processes representative of impressions received primarily at the peripheral endings of afferent nerves, or representative of movements operated ultimately by efferent nerves through muscles; and that, in fact, the representation is always one conjoining both impressions and motor-impulses. Such being the fact, neither more or less, on the physical side at every stage of brain-development up to the highest in the convolutions, he strongly condemns the language of those physiologists who "speak as if at some place in the higher parts of the nervous system we abruptly cease to have to do with impressions and movements, and begin all at once to have to do with mental states." He contends, in short, for thorough-going parallelism between sensori-motor brain-processes and conscious mental states, in the sense at once of correspondence and absolute distinctness, and no one has ever expressed the general relation more clearly and forcibly. The question of the downward limit of this relation between the physical and the psychical, he touches but leaves open.

From this position, then, he defends his special assumption that the study of paralysis and convulsion, leading to the localisation of movements and impressions in the brain, has a most important bearing on the physiological investigation of the substrata of mind. Before Hitzig and Ferrier began to practise direct stimulation of the exposed surface of the brain in animals, Dr. Hughlings Jackson had been led, by clinical observation of human patients, followed up by autopsy, to general views regarding the structural and functional relations of the different parts of the brain which their experiments but served to confirm. To their labours he does ample justice—indeed he speaks of them with the most generous enthusiasm—but he rightly urges that his own method of research must continue to be followed for the human brain. His main conclusions may be shortly given—(1) In disease of the brain (whether by destruction or over-discharge of parts—paralysis or convulsion), the most voluntary or special movements, faculties, &c., suffer first and most; this he calls a principle of Dissolution, reversing the order of Evolution. (2) The convolutions near the corpus striatum re-represent the movements represented in that centre. (3) The same muscles are represented in different order in several places; although, therefore, muscles may be convulsed by discharge from a particular part of the brain, they need not be paralysed by its destruction. (4) The movements of the two sides of the body are represented in each half of the brain. (5) The two halves of the brain are not duplicates: there is a leading side—the left in most people—for voluntary movements, the right side serving for corresponding automatic movements. (6) The anterior is the chiefly motor, and the posterior the chiefly sensory, region of the cerebrum; their distance apart and multiplicity of connections having a meaning in relation to the power we have of forming new combinations out of the elements of mental experience. (7) All the movements of the body, while represented in the cerebrum, are represented also, but in a different order in the cerebellum. The reader is referred to the reprint and the preface for the evidence upon which these conclusions are founded. Before closing this short notice, I wish, however, to draw attention more particularly to the discussion extending from p. xx. to p. xxxvii., where the author in proof of his main thesis that sensori-*motor* processes are the physical substrata of mental states, takes words and visual forms as examples, and shows that, whether the mental experience is representative or presentative, the brain-process is equally sensori-motor, involving both seats for receiving impressions and centres whence motor impulse proceeds. The whole argument is excellently conducted, and displays rare psychological acuteness. Should it be said that the instances are not quite decisive of the general position, being cases in which the presentative experience—actual speaking and seeing—too manifestly involves direct muscular activity, the author might reply that it was important to choose examples about which there could be no mistake; but, in fact, the case of vision is one which it needs no small amount of psychological training to apprehend rightly. Physiological observers, even when they duly appreciate the import of the motor element in speech, often fail to understand its import in the explanation of objective knowledge generally. It would not be easy to urge the latter point more effectively than it is done here by Dr. Hughlings Jackson.*

EDITOR.

* Since the notice above was written I have seen a series of three papers on Psychology and the Nervous System contributed to the *British Medical Journal* in September and October last. The writer, who is evidently Dr. H. Jackson himself, while expounding the main positions of the pamphlet here noticed, supports them with new and important evidence. One paragraph bearing on the question last touched of the part played by muscularity in vision, contains an argument so neatly put and so decisive that it deserves to be quoted in full:—

"There are many morbid conditions which show the importance of muscularity, or of action of nervous centres representing movements, in the estimation of the extension of objects. By altering movements of our eyes, we alter the size of objects, if this expression may be permitted. For example, if we impress the retina with a flame, and thus obtain an after-image, we find that this varies greatly in size as we look near or into the distance. Yet the sensory element concerned—the retinal area affected—is unaltered during the differences of ocular adjustment. There is even more than

The Principles of Sociology. By HERBERT SPENCER. Parts I to V.
Williams and Norgate, 1874-5.

The issue of this work has now advanced to five parts, amounting to 400 pages, embracing a number of topics of the highest interest.

The Philosophy of History has passed through several phases since History first began to be written, as may now be clearly seen from Professor Flint's work, of which the first volume, comprising French and German authors, has been published. The subject received its last great impulse from Auguste Comte's work—the *Philosophie Positive*, following on John Stuart Mill's articles in the *Westminster* and *Edinburgh Reviews*—on Guizot, Michelet, Thierry, and De Tocqueville. In the *Logic*, Mill, having imbued himself with Comte's speculations, presented a summary of theoretical Sociology, which served as a sort of text-book or compendium to a generation of learners.

Mr. Spencer's work starts from a new vantage ground. The speculative doctrine of Evolution was implicitly allowed in regard to social facts, when not thought of anywhere else; and as it is now formulated with precision, it is in a better state for being applied anew to human history. Again, the accumulation of observations respecting the earlier stages of man, and respecting the inferior races, has provided an immensely enlarged inductive basis for the laws of social evolution. On this basis various theorists have already established a number of remarkably luminous inductions.

Mr. Spencer's competence for rearing an advanced scheme of Sociology rests upon his having worked his way upwards through the various preparatory stages, in a series of treatises, each admirable in itself, and all pointing to this consummation. The science that Sociology immediately reposes upon is Psychology; and in his systematic handling of this branch, Mr. Spencer, while doing justice to the wide field of mental facts, has made his expositions point, by anticipation, to Sociology. We are, therefore, interested in glancing at his manner of entering on the new department.

He opens by a short chapter defining "Super-Organic Evolution" as that new and higher form of Evolution exhibited by man in

this. By different adjustments of our eyes—that is by altering the *motor* element—we may to some extent alter not only the size, but the shape, of these spectral images. Thus, if we impress the retina by a circle, and then project the after-image on to an inclined sheet of paper, our spectral circle becomes oval; a spectral square becomes oblong. This is a very remarkable illustration, showing the importance of movement in the estimation of shape. In both cases, the retinal (sensory) element is unaltered. The differences in size and shape are owing to differences solely in the motor element."—*British Medical Journal,* Oct. 2nd, 1875.

The writer also draws attention to Dr. Weir Mitchell's remarkable work on *Injuries of the Nerves,* which furnishes evidence strongly confirmatory of the doctrine that the so-called muscular sense accompanies the *out-going* of motor-impulse by the efferent tracks—a doctrine associated in this country with the name of Professor Bain, and in Germany chiefly with the name of Professor Wundt.

society. He already prepares us for his line of treatment, which is to make Evolution the mould or matrix of all Sociological doctrines, much the same as he has done with Psychology.

He then inquires what are the "*factors* of social phenomena." First are the extrinsic or *external* factors, namely, the physical environment—comprising climate, configuration of surface, vegetation, animal life, and the modifications that man can make upon these. The physical circumstances and surroundings of human societies have long been taken account of in explaining their state of progress. It was brought into prominence by Montesquieu, and is now adverted to by all historians and sociologists. Mr. Spencer's handling of the subject is brief, but takes in all the leading points. He lucidly brings out the important bearings of climate, variety of surface, vegetable productions, and animals; resuming skilfully the various ways that the past and the existing civilisations have been influenced by one and all of these different conditions.

After the external factors come the *internal*—Man himself. This leads to a review of the characteristics—physical, emotional, and intellectual—of what many call the primitive type of man; a somewhat arbitrary assumption, but yet necessary as a starting-point, and not involving any hypothesis as to the actual commencement of the human race.

Under the physical traits, Mr. Spencer first discusses the *stature*, and finds that, although there are curious exceptions, as a rule, the lowest races are inferior to the civilised races in this characteristic; yet not in a very decided degree, except in the lowest races of all. A more marked difference is in the development of the *lower limbs;* short, small, slender, or crooked legs would seem a prevailing feature of the savage tribes. The meaning of it is discussed with great appearance of reason. Then comes the trait of *large digestive organs*, the 'pot-belly'; obviously connected with uncertain meals and coarse food; and implying a low capacity for steady work. Farther, the *muscular strength* as a whole is not up to the mark of the civilised man. Again, the primitive man has a point of advantage or superiority in his *hardiness*, the power of resisting cold, malaria, and bodily injuries. Mr. Spencer thinks it probable (he might have said "certain") that this, and we may add the pot-belly, entails loss of power in other directions. It is a positive endowment of the system, an expenditure of nervous and other power, to maintain leading functions at great odds. Allied to the same fact, Mr. Spencer thinks is the *callousness to suffering* generally; indeed this is the same fact, if it means that causes of suffering do not make suffering. The concluding physical characteristic is *early arrival at maturity*, connected with a low cerebral type.

The mental characters are divided into emotional and intellectual. As to the *emotions*, the first and fundamental trait is *impulsiveness* to which is properly devoted a considerable amount of illustration, being the key to many seemingly contradictory manifestations of the savage mind. Improvidence is merely one direction of the same trait; and with this is associated by cause and effect a childish mirthfulness. Next comes the important circumstance of *sociability*, or rather the balance of the two opposing tendencies, one tending to independence, the other to social cohesion. Here the primitive man shows considerable variety, but until the social forces acquire preponderance he makes very little way. Sociability is first strongly manifested as a cohesive force in the form of *vanity*, and the influence of approbation and disapprobation generally, the first great curb to egotism pure and simple. As regards *sympathy* proper, the sources of its culture are the marital and parental relations, whose manifestations in the lower tribes are set forth by the author at some length. To these characters is added the *fixity of habit* in the uncivilised man, a consequence and a cause of his degraded condition.

Viewed *intellectually*, the primitive man is wanting in the grasp of *general facts;* out of which single defect springs a multiplication of weaknesses. Next is a point of superiority, if viewed in itself, namely *acute nerves* and quick perceptions. To exceed another person in delicacy of smell or hearing is a merit and not a defect. The misfortune is that such acuteness should be necessary, being purchased at the expense of the more exclusively intellectual functions, such as are necessary for arriving at general truths. The superhuman smell of the savage has to disappear along with the pot-belly, before he can be a well proportioned intelligence. Acuteness of sense may lead to artistic excellence, as in the low form of mimicry, for which savages have often a talent. The general intellectual weakness is further associated with extreme *credulity*, and with an absence of rational surprise and intelligent curiosity: the motives necessary to the beginning of what may be called speculative knowledge. Another important remark is "the lack of *constructive* imagination," a guarded phrase which allows plenty of another kind of imagination —the converting of facts into fancies. And finally comes the intellectual side of one of the physical traits, namely, that the primitive intellect *develops more rapidly* and stops sooner than the intellect of the civilised man.

Mr. Spencer's next chapter is "Primitive Ideas," an exceedingly valuable and interesting review of the way that the intellectual defects of the early mind limit and pervert its views of the world. Here he anticipates the difficulty of knowing what *are* the primitive man's ideas. If we take very low races at the present time, we may find that they have ideas beyond their station, in consequence of being the degenerate successors of some better race: retrogression being a fact as well established as progression. Nevertheless, starting from the weakness of faculty of the infant races, we see that they are bad classifiers, confounding, for instance, glass with ice, and biscuit with dried flesh. Still more are they out in classing relations (cause and effect) as when they call dew the same effect as "sweat," or "spittle." In short, they have no power of analysis, adequate to deal with the unions of like and unlike properties presented by the outer world. Their notions of what makes an "explanation" are singularly hazy. They swallow incongruities and inconsistencies by the score.

In following out these tendencies to results of importance, Mr. Spencer instances the attitude of the savage mind in gazing at a cloud that has vanished, or at the occasional disappearance of the stars, the moon and the sun. Unable to reach the true interpretation, he snatches at the most familiar analogy, and says they have *departed*—walked away. What does he make of the wind? A power that cannot be seen; but this invisibility is simply due to going away. From facts such as these he takes up the notion of *duality*, or double existence—in sight and out of sight.

Another class of things—a fossil, for example,—gives the idea of the transformability of matter; and, there being no definite limit to the process, when trees are seen petrified, it is quite admissible that men may be turned into stones. Then what ideas are formed from living growth: from a chick leaving the egg? It is just as conceivable that the chick may be brought out of a nut.

What is a shadow? A reality, attached to a tangible object, but itself intangible—a real existence. What are reflexions? Another intangible accompaniment of things. What are echoes? The voices of concealed beings; confirming the duality of existence—the seen and the unseen.

Now for a theory of this double existence. To prepare the way, the author devotes a chapter to the distinction between the Animate and the Inanimate, as evolved in the primitive intelligence. At this point, I shall stop for the present. In another notice, it may be possible to indicate an outline of the genesis of the conception of "Spirit" or mind, which is fraught with so many developments, including Religion and the Supernatural.

A. BAIN.

The Character and Logical Method of Political Economy. By J. E. CAIRNES, LL.D., Emeritus Professor of Political Economy in University College, London. Second and enlarged edition. Macmillan and Co., 1875.

The late Professor Cairnes spent the last remnant of his strength in revising the lectures on the Logic of Political Economy, by which he laid the foundation of his fame. They were originally delivered by him as Whately Professor of Political Economy at Dublin in 1857, and announced the rise of a new and vigorous thinker. By what labours he passed to the rank of a master, not only in economics, but in political science generally, is well-known, and now since his death in June the world has learnt what only his friends knew before, that all the work of his later years—the years of his intellectual prime—was done under overwhelming physical helplessness and in the face of inexorable doom. It was a revelation of the possibilities of human nature to see him as he struggled on.

Besides a number of minor changes, the present edition of his early work includes a new chapter on the subject of Definition in political economy. That definitions in such a science as political economy are expressions of results rather than principles to be reasoned from; that they are thus only provisional and subject to constant revision; that they may be good, though the attributes involved are found to exhibit degrees in the concrete; that, in a subject so nearly allied to the interests of life, the terms employed must be borrowed from popular speech, and should be used as nearly in their common meaning as consists with the exigencies of the science—such are his main conclusions, and they bear the stamp of the sagacity so distinctive of his mind. The exposition of the logical method to be followed in the science generally—conceived in the sense of Mill's doctrine of deduction as resorted to in matter too complex for direct observation and not amenable to decisive experiment, while at the same time the general character of the causes or conditions involved is not doubtful—remains the best that has yet been attempted. In his new preface the author declines to follow Professor Jevons in his endeavour to make the deduction strictly quantitative, "unless it can be shown either that mental feelings admit of being expressed in precise quantitative forms or that economic phenomena do not depend upon mental feelings." It is interesting, on the other hand, at the present time when the statistical treatment of economic questions has come so much into vogue, to note how forcibly Cairnes argued beforehand against its scientific character. Not for a moment denying the importance and necessity of statistical inquiries, whether for determining the real economic problems that have to be solved, or as furnishing the indispensable means of verifying the reasoned conclusions, he yet maintains that in the divinatory selection of appropriate premisses and in the conduct of the reasoning process lies the true function of the scientific economist. EDITOR.

X.—REPORTS.

I. PHYSIOLOGICAL JOURNALS, &c.*

Rate of Current in Sensory Nerves.—Bloch has recently made a very elaborate experimental inquiry into the rapidity of the nerve current in sensory nerves, and has arrived at conclusions differing from those of other physiologists.

(1) The rapidity of the nerve current in sensory nerves should be determined exclusively by sensations, without involving any other physiological phenomena.

(2) Bloch's method is founded upon observations of the greater or less persistence of the sensation between two successive shocks. If two shocks are received simultaneously or successively, one by

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* Any monographs or journals containing information as to researches into physiological questions bearing on psychology may be sent to the Editor for future notice under this heading.

each hand, then in the latter case, if the interval between the two shocks be sufficiently short ($\frac{1}{45}$ of a second being the limit) the mind perceives only one sensation.

(3) The explanation of this is that the sensation produced by the first shock lasts with a sufficient degree of intensity until the arrival of the second impression and the commencement of the second sensation. By graduating the distance between the points of shock and graduating the time between successive shocks the sensations may still be synchronous, although the points of shock are widely apart. If we keep the same time between shocks at different points of shock, the interval between the sensations or the absence of synchronism will indicate the time occupied by the sensory transmission.

(4) If the first shock be transmitted, say to the lobule of the nose (nearer the sensorium), and the second to the hand, the synchronism between the two shocks becomes evident on permitting a shorter time to elapse between the two shocks than when the shocks are sent to both hands. The time of receiving the shock and of the sensation is registered upon a rapidly revolving wheel. The difference between the two intervals measures the difference of the duration of the transmissions from the hand and from the nose respectively to the sensorium.

(5) Bloch found by observation and subsequent calculation that rapidity of transmission is greater in the spinal cord than in the nerves.

(6) Experiments made by stimulating the nose, the hand, and the foot have given the following results: Rapidity of the nerve current in the Spinal Cord is 194 metres per second; in the Nerves, 132 metres per second.

The methods previously adopted by physiologists for the measurement of the rapidity of the current of sensory nerves by means of such an apparatus as Regnault's chronograph have given a lower rate than that computed by Bloch. They are—94 metres per second (Kohlrausch), 60 (Helmholtz), 34 (Hirsch), 30 (Schelske), 26 (de Jaager), and 41.3 (Von Wittich). Bloch also states in his paper, (1) that a voluntary movement excited by a sensation and executed by a contraction of the muscles of the forearm and hand is more rapid when one of the two hands is excited than when any other part of the body receives the impression; (2) that flexion of the finger in response to a shock transmitted to the forearm or to the face is produced more slowly than when the shock is transmitted to the hand; and (3) that the general position of the body influences the results and modifies the time required for the transmission of sensory impressions. (*Gazette Médicale de Paris*, Juin, 1875; *Archives de Physiologie*, Brown-Séquard, Charcot, Vulpian, Août et Sept. 1875.)

Sleep.—Obersteiner states that sleep is due to the accumulation of acid products in the brain. It is well known that activity in muscles or nerves is accompanied by the formation of acid substances; but Obersteiner has not proved (1) that the grey matter of the brain during action becomes more acid than it is normally; nor (2) that the presence of acid in the grey matter would so interfere with its activity as to produce sleep. This theory of sleep is, therefore, not based on a sufficient number of facts. (*Archiv. f. Psychiatrie*, Bd. 29.) Gscheidlen has shown that the grey matter of the brain and cord and of ganglia is always normally acid, whereas the white or conducting matter is neutral. (Pflüger's *Archiv*, VIII. 172.)

Pflüger has recently advanced a remarkable physico-chemical hypothesis regarding sleep, which may be shortly summarised as follows. The functional activity of a nerve-centre, as of any other organ, depends upon the dissociation of living matter, so as to form simpler compounds. This living matter consists of a modified kind of albumen, which is split up into numerous compounds, including carbonic acid. By this process energy is liberated or transformed into heat. An atom of carbonic acid is thrown into a state of very active vibrations, and these vibrations, or explosions, as termed by Pflüger, are transmitted in various directions along the nerves. Deprive a frog of oxygen and it passes into a state precisely resembling sleep or apparent death; admit oxygen and it is again aroused. From this Pflüger infers that a certain proportion of "intra-molecular" oxygen in the nerve-centres is essential to the waking state, since it secures a certain number of explosions, caused by its union with carbon, to occur in a certain unit of time at a given temperature. But during waking the process goes on too rapidly, and "the energy of chemical affinity is used up much faster than the intra-molecular oxygen of the grey matter of the brain can be replaced." Consequently less and less carbonic acid is formed; fewer explosions occur; and when these sink below a certain number per unit of time sleep occurs. The energy of the brain then sinks so low that it becomes incapable of maintaining action without an adequate stimulus, but even during sleep the brain energy is never entirely lost. Pflüger applies this ingenious hypothesis to explain the periodicity of sleep, and he compares ordinary sleep with the hibernating condition of mammals during winter and the summer sleep of tropical amphibia. (Pflüger's *Archiv*, x, 8, 9.)

Hereditary Transmission of Injuries to the Nervous System.—In the *Lancet* of January 2nd, 1875, Brown-Séquard illustrates the following examples of hereditary transmission: 1. Development of epilepsy in animals born of parents which had been made epileptic by section of part of the spinal cord, or of the sciatic nerve. 2. Change in the form of the ear of animals born of parents which had presented a like change after section of the great cervical sympathetic. 3. Partial closure of the pupil in the descendants of animals in which the pupils had become contracted after section of the cervical sympathetic or removal of the superior cervical ganglion. 4. Protrusion of the eyeball in the young of animals in which the eye had become prominent from lesion of the restiform bodies. 5. Congestion and gangrene of the ears of animals the parents of which had the same lesion following irritation of the restiform bodies near the point of the calamus scriptorius. 6. Absence of the claw from certain of the toes of the posterior extremity in animals the parents of which had the posterior extremity rendered insensible by section of the sciatic or crural nerves.

These experiments are of great importance as bearing on the question of hereditary transmission of peculiarities acquired even in one generation.

The Accommodation of the Ear for musical tones of different pitch.—Lucae, by otoscopic observations and experiments, has come to the conclusion that the ear possesses two muscular arrangements for accommodation purposes. The ear, he states, is arranged for the reception of low tones by the action of the tensor tympani muscle, and for high tones by the stapedius. The range of action of the tensor tympani rises as high as C^b=9192 vibrations per second. Above that it exercises no influence; but the higher tones are heard with greatest distinctness when the stapedius muscle is in action. When this muscle is relaxed the higher tones are weakened or completely extinguished. These statements are founded chiefly on an ingenious experiment made first by Fick, and since frequently repeated by Lucae. The movements of the membrane of the drum cannot usually be seen by the naked eye in the uninjured living head. To render the movement apparent the teeth are placed gently together, and a glass tube having in the stem an index of coloured fluid (like that of a maximum or minimum thermometer) is placed in the external auditory meatus, having one end in contact with the membrane of the drum, and air tight. On contracting the muscles of the jaws the index moves toward the ear, in consequence of the rarefaction caused by the inward movement of the drum, produced by the simultaneous contraction of the tensor tympani with the muscles of the jaws. When this occurs deep tones are heard more distinctly than usual. To obtain simultaneous contraction of the stapedius, Lucae caused contractions of the muscle around the orbit (orbicularis palpebrarum) which is supplied by the same nerve as the stapedius. When the stapedius was in action, then high tones are heard more distinctly. Lucae also found, on examining in this manner many individuals, that there were some whose ears appeared to be better adapted for hearing high tones than low tones, and *vice versâ.* He divides all into "deep-hearing" and "high-hearing," and he states that abnormal deep hearing is more distinct in cases of facial paralysis (paralysis of the *portio dura* —facial nerve), while abnormal high hearing usually occurs where injury and possible loss of substance of the membrane of the drum has been caused by suppuration in the tympanum. In both of these cases the power of accommodation appears to be lost. (*Centralblatt*, October, 1875.) JOHN G. MC.KENDRICK.

II. GERMAN PHILOSOPHICAL JOURNALS.*

Zeitschrift für Philosophie und philosophische Kritik, herausgegeben von Dr. J. H. v. FICHTE, Dr. HERMANN ULRICI, und Dr. J. U. WIRTH, Neue Folge. Bd. 66. u. Bd. 67. Hf. I. Halle, 1875.

The readers of MIND will have regularly presented to them an account of the contents of the philosophical journals of Germany. As a kind of preface to future notices, it seems desirable to indicate briefly the general characteristics of the periodicals which are to be reviewed. In the present number this is nearly all that can be attempted.

The *Zeitschrift für Philosophie* is undoubtedly entitled to the place of honour. Founded by Dr. Fichte in 1837, it is the oldest of the periodicals specially devoted to philosophical discussion which are still in circulation; it has been the medium of publication for numerous profound treatises of permanent value which would probably never otherwise have seen the light; and it has as yet lost none of its vigour. Its articles were never more elaborate, and its notices of books were never more carefully executed than at present. For many years it was the only German journal dedicated to mental science and speculative philosophy. It was published from 1837 to 1842 at Bonn, and from 1842 until 1847 at Tübingen, under the designation of *Zeitschrift für Philosophie und speculative Theologie.* In 1847 Dr. Ulrici, widely known to English readers as a literary critic, joined Fichte in its editorship, and since that date it has appeared at Halle. In 1852 Dr. Wirth, author of a *System der speculativen Ethik*, became the editorial colleague of Drs. Fichte and Ulrici, on his abandoning the management of a periodical founded by himself the previous year under the title of *Philosophische Studien.* Fichte, Ulrici, and Wirth have sometimes been described as pseudo-Hegelians, but certainly without good reason. They have always recognised the greatness of Hegel, and have sought to profit by the truth which he collected, and the truth which he discovered, but during the whole time of their editorship of the *Zeitschrift für Philosophie*, they have been among the most decided and influential opponents of what is distinctive of Hegelianism both in matter and form, although with praiseworthy liberality they have frequently received contributions from Hegelians of the right, as from other thinkers whose views were very different from their own. So long as Hegelianism was a living power, opposition to Hegelianism was a prominent characteristic of their journal. During later years that has naturally given place in a considerable measure to opposition to materialism, and to the various recent forms of evolutionism professedly based on the results of positive science. The chief aim, however, of the editors has never been a merely polemical one; on the contrary, it has been to do justice to all the philosophical systems of the past, and especially those which have issued from the critical investigations of Kant, to mediate between speculation and empiricism, to harmonise metaphysical philosophy and positive science, and to elaborate and establish a comprehensive Theistic theory of the universe.

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* Reports on other journals—French, Italian, American—are postponed from want of space.—ED.

The articles in the *Zt. f. Ph.* are frequently sections of treatises which are continued from number to number for a year or longer, and it is not always possible to judge aright of the parts until the whole has appeared. Occasionally, therefore, the reviewer may find it desirable to delay giving a particular account of the treatises in this periodical until they are completely before him; but this will only happen when their themes and mode of treatment seem to him to give them a special interest for the readers of a journal of scientific psychology and philosophy. There are no less than three series of articles brought to a close in the numbers before us. In the first number of vol. 66, Dr. Grapengiesser has the last of three articles on "Kant's Transcendental Deduction, with reference to the writings of J. Bona Meyer, O. Liebmann, Kuno Fischer, Ed. Zeller, Herm. Cohen, and Ed. Montgomery." They are full of acute criticisms expressed with great clearness and vivacity. He finds Kant lamentably misinterpreted by his commentators and accusers, and aims throughout at showing that no one has understood him so well as Fries, who ought to be considered as his true successor. In the following number of the same volume Dr. J. Wolf concludes a series of four articles on "the Platonic Dialectic." And in the first number of the following volume Dr. A. Dorner has the last of his three articles on "the Principles of the Kantian Ethics." In 66. 2. Prof. Teichmüller communicates a hitherto unpublished letter of Kant and another of Fichte. That of Fichte is very characteristic and interesting. In 67. 1. there is an essay of Dr. J. H. Loewe on "The Simultaneous Origination of Speech and Thought." More than the half of each number of the *Zt. f. Ph.* is occupied with reviews of books on philosophical subjects; and great care is evidently bestowed on this department. English works are generally noticed by Prof. Ulrici, and Italian works by Prof. v. Reichlin-Meldegg. A considerable number of books in various languages are faithfully summarised and intelligently criticised in the numbers before us. Ulrici's review of Sigwart's *Logik* (Bd. 66. H. 1.) is valuable as a clear and reasoned statement of the chief points of agreement and difference between these two eminent logicians. Prof. E. Pfleiderer has written (Bd. 66. H. 2.) a most thoughtful disquisition on "Realism and Idealism," suggested by Baumann's *Philosophie als Orientirung über die Welt.* It seems almost invidious, however, to refer specially to those two reviews, when there are so many others equally, or almost as, elaborate.

R. Flint.

Zeitschrift für Völkerpsychologie und Sprachwissenschaft. Herausgegeben von Prof. Dr. M. Lazarus und Prof. Dr. H. Steinthal. Achter Band. Drittes Heft. Berlin, 1875.

This periodical was founded in 1859. Only two numbers are published each year, and four numbers make a volume. Its editors are both men of the highest reputation as comparative psychologists and scientific philologists. Dr. Steinthal's treatises are in the hands of all who take an interest in the philosophical study of language, and Dr. Lazarus is the author of a remarkable work entitled, *Das Leben der Seele, in Monographien über seine Erscheinungen und Gesetze*, which is eminently worthy of being better known in this country than it is. The branch of psychology to the advancement of which their journal is devoted is meant to treat of the collective life of humanity as it presents itself in tribes and nations, with whatever in history is seed or fruit, condition or consequence of the general mental life. The science of speech which it is designed to cultivate is not ordinary philology or empirical linguistics, but a science which seeks to discover, in the way of exact research, the psychological laws according to which human language is realised and developed. Lazarus and Steinthal belong to the school of Herbart, and the psychological principles of Herbart often come into view in the pages of the *Zt. f. V. u. S.* They are seldom, however, brought very prominently forward, and language is much more frequently employed to throw light on psychology than psychology to throw light on language. Those who are aware how abstruse, complicated, and difficult to follow in its details and applications the Herbartist theory of mind as a "psychological mechanism" is, will rightly infer that readers, and even reviewers, have reason to be grateful that the light is thus made to shine on the darkness instead of the darkness being brought down upon the light. And, which is more important than the ease of readers, the procedure is one which is correct in itself, and which cannot but be profitable to psychological science. It is only by solving problems which are in great part presented to it from without that any science can be truly advanced. Even mathematics, which has in the character of its fundamental conceptions such an enormous advantage over all other sciences, has found its chief stimulus in the requirements of the natural philosopher, in the problems of astronomy, mechanics, optics, heat, and electricity. And if this is so with the science which is based on such singularly simple, precise, definable, workable conceptions as number and quantity, surely nothing but delusion and emptiness can be expected from a science like psychology, with its vastly vaguer conceptions and vastly subtler objects to start from, attempting to proceed entirely from within and ignoring the combinations of human nature which are presented in history, in literature, and in language. A main reason why the mental world has been so imperfectly explored has doubtless been the abstract, speculative, self-contained nature of our mental science; its neglect of the concrete and spontaneous manifestations of the human mind and life. Among these manifestations none is so likely to prove rich in psychological instruction as language, which is at once far the truest mirror of the present character of man, and far the oldest record of his past history. Philological analysis is often psychological analysis of the subtlest and most delicate kind, the shades of meaning which a term may acquire from the circumstances, time, and mode in which it is used being indefinitely numerous, so that to distinguish them with precision calls for a nicety of discrimination which nothing else would occasion, while it often brings out unexpected and valuable results. We would not wish, then, that the *Zt. f. V. u. S.* should become less a medium for contributions to the science of language and to comparative human psychology than it at present is; but, perhaps, it is to be desired, now that the *Zeitschrift für exacte Philosophie* has unfortunately ceased to appear, and that the Herbartist school has, in consequence, no longer a general organ, that its scope and plan were enlarged, its staff of writers increased, and that it were published more frequently.

The greater part of the number before us is written by Prof. Steinthal. He first gives us, as a contribution to the Philosophy of Religion, a very trenchant review of J. Bona Meyer's *Philosophische Zeitfragen;* then an article on "Semitism," indicating what light Schrader's recent researches have thrown on the genius of the Semitic race; and, finally, three notices of books and a note on the "Infinitive." G. v. d. Gabelentz concludes his papers on "Comparative Syntax." There is unusually little in this number of what is psychological or philosophical. R. FLINT.

Die neue Zeit. Herausgegeben von Dr. HERMANN FREIHERRN VON LEONHARDI. Bd. iv., Hfte. 1 u. 2, Prag. 1875.

It is to be hoped that these will not be the last numbers of this interesting periodical. We learn, however, with deep regret, that the editor, Baron von Leonhardi, died at Prague on the 20th of August. The school of Krause has recently suffered heavily from the strokes of death and fate. It is little more than a year since it lost in Prof. Ahrens the most widely known of its German jurists. In Spain alone, three of its members, F. M. Maranges, Thomas Tapia, and Fernando de Castro, all distinguished scholars and friends of the noble Sanz del Rio, died during the previous year. About the end of February last other representatives of it, whose names are still more celebrated, Nicholas Salmeron, Giner de los Rios, &c., were, in that unhappy country, driven from their professorships, exiled and silenced. Now, there has come the death of the man whose breadth of culture, whole-hearted acceptance of his master's principles, inexhaustible zeal for their diffusion, and intense interest in every kind of educational progress and social reform, made him not only the universally acknowledged head of the Krausean school in Germany, but an almost ideally perfect representative and embodiment of Krausean doctrine. That doctrine claims to be not only a theory of existence, but a rule of life for the individual in all his relations, and for the family, the nation, and the race in all their stages. Hence, Dr. v. Leonhardi, in founding and directing congresses for the advancement of philosophy, in establishing local associations for its study, in attempting to popularise the teaching of it and to make it a general instrument of culture, in advocating the *Kindergarten* system and the higher education of women, in endeavouring to organise the profession of teachers and to give it wider and higher aims, and in inculcating peace between nations, legal reforms, hopefulness as regards the future of humanity, &c., was only exemplifying the spirit and principles of Krauseanism, but he exemplified them with an admirable, an unequalled fulness and faithfulness.

The *Neue Zeit* would have been no true mirror of the mind of its founder, and no true organ of the philosophy of Krause, if its aim had not been at once theoretical and practical, the advancement of science, and the improvement of life. It has, however, been addressed alike to the students of philosophy and to those who are chiefly interested in the social, political, and religious agitations and problems of the age. Of course, present day questions have been always looked at in relation to fundamental and eternal truth, on the one hand, and to the laws and end of human development, on the other, as believed to have been ascertained and proved by Krause.

Of the two numbers which have appeared during the year, the first is almost entirely occupied with the philosophy of history. To begin with, there are eleven lectures delivered by Leonhardi at the University of Prague in 1866-7 on "The laws of human development and the problem of human life." They are expressly declared to be founded on Krause's philosophy of history, and we have seen no exposition so good of some of the chief peculiarities of this portion of Krause's system. Then, there is, also from Leonhardi's pen, an article on the accounts of Krause's philosophy of history given by M. Frédéric de Rougemont in his *Deux Cités* and by the undersigned in his *Philosophy of History in France and Germany* with which neither of us at least is likely to find much fault. Prof. Zeller will probably feel very differently regarding Dr. Hohlfeld of Dresden's criticism of the exposition of the Krausean system given in the *Geschichte der deutschen Philosophie seit Leibnitz*. However, Dr. Hohlfeld's objections are mostly well-founded, although they naturally appear more serious to a follower of Krause than they will to others. In the following number Dr. Hohlfeld has two articles. The first entitled "The Philosophy of Krause and the German Empire," begins with a defence and eulogy of Krause as a writer. Dr. Hohlfeld expresses high admiration even for the scientific terminology which Krause employed in his later synthetic writings. This admiration, we fear, must appear to all but a very few co-disciples an inexplicable eccentricity of literary taste. In the second portion of his essay he seeks to show the high significance and value of the philosophy of Krause by indicating its chief characteristics. These he considers to be the originality, depth, and clearness of the idea which it gives of the primary, supreme, and ultimate Being, its completeness and consistency as a doctrine of evolution, its universality or comprehensiveness as regards alike the objects and sources of knowledge, and its practical character, as manifested especially in its philosophy of history, its philosophy of law, and its philosophy of religion. His second article is on "The place of the Science of Language in the System of Science." In order to give an intelligible account of it we should require to explain generally Krause's views on the relations of the sciences, and that, ingenious and suggestive although these views be, we must not attempt to do at present. The article of perhaps greatest general interest in the number—that of Prof. Röder "On the relation of Law and Government to Religion and the Church"—does not concern us here.

R. FLINT.

Philosophische Monatshefte. Unter Mitwirkung von Dr. F. ASCHERSON und Dr. J. BERGMANN redigirt und herausgegeben von Dr. E. BRATUSCHECK. Bd. xi. Hfte. 1-8. Leipzig, 1875.

This periodical had for predecessor the Hegelian journal *Der Gedanke*, which was edited from 1861 to 1867, by Dr. Michelet of Berlin, and during 1867, by Drs. Michelet and Bergmann. Their partnership ending with the close of that year, the *Gedanke* was discontinued and the *Philosophische Monatshefte* was founded by Dr. Bergmann, who acted as sole editor of the first seven volumes. Since 1872 it has been edited by Dr. Bratuscheck in conjunction with Drs. Ascherson and Bergmann. Its plan and character have been considerably modified in the course of its history. It will suffice to indicate what they are at present.

The aim which its editors set before them is that of making it a central organ for philosophy in Germany; a publication equally open to all particular schools, and in which none will receive any special favour. They freely allow criticism of the articles and replies to the reviews which appear in it, provided that the polemical do not degenerate into the personal. They seek to have an impartial objective account given of all investigations of importance in every department of philosophy. In order to accomplish this, some numbers of the *P. M.* have, during the present year, contained no original essays, and the notices of books have been in many instances merely careful summaries, without any critical annotations. In general, there is at least one essay in each number. Occasionally, but rarely, there are contributions which extend over several numbers. In each number a list is given by Dr. Ascherson, who is Custos of the University Library of Berlin, of all books, pamphlets, and periodicals which treat of general philosophy, the history of philosophy, logic and the theory of cognition, psychology, metaphysics, philosophy of nature, ethics and the history of culture, the religious question, æsthetics, and pædagogy. The completeness of these most useful lists, and the skill with which the works enumerated are grouped, are worthy of the editor of Ueberweg's *History of Philosophy* and of the *German Universities' Calendars*. Intelligence is also regularly supplied by this journal as to the courses of lectures on philosophy delivered in the Universities, the subjects discussed in philosophical societies, the themes prescribed by the Universities for philosophical prize-essays, changes in the philosophical professoriate, and, in fact, all matters likely to interest the student of philosophy. It is undoubtedly the journal best calculated to keep either the native or foreign reader 'posted up,' as the Americans say, on all that is being done in philosophy throughout

Germany. Ten numbers are published annually, and compose a volume.

The first essay in the volume before us is Dr. Bratuscheck's (in No. 2) on "Positivism in Science." It is an attempt to show that the positivism of Comte is essentially a reproduction of the phenomenalism which was taught by the Greek sophists and refuted by Socrates and Plato; that it is self-contradictory in its principles and arbitrary in its inferences; and that it naturally tends to nihilism in speculation, and slavery in practice. Prof. Dilthey of Breslau, the author of one of the best philosophical biographies in the German language, a *Life of Schleiermacher*, began in No. 3, a contribution on "The Study of the History of the Sciences of Man, of Society, and of the State," which is continued in Nos. 6 and 8, and is not yet concluded. In No. 4, Dr. Merx publishes the inaugural lecture which he delivered as professor of Semitic Philology at Tübingen in 1869, on "The Philosophy of Religion of Averroes." It may safely be recommended as an introduction to the study of the doctrine of the celebrated Arabian Aristotelian, and of the works which treat of it, as, for example, those of Renan, Munck, and Müller. Dr. Merx also publishes (in No. 7) the inaugural discourse delivered by him in February, 1875, as professor of Oriental Languages at Giessen, under the title of "The Law of Codification." The remarks which it contains on the combination of necessity and freedom in historical development, on the manner in which earlier cognitions and volitions influence and limit later ones, on Lazarus's law of the concretion of ideas, &c. and still more the attempt to show from Hebrew, Arabian, and Roman history how nations at the commencement of new epochs are impelled to save and sum up in Codex and Canon what the past has left to them or evolved for them of a rule of life, will not fail to interest the student of the philosophy of history. The essay of Dr. Vaihinger (in No. 5,) on "The present state of the Cosmological Problem," is so full of information that it would scarcely admit of further condensation. Of the longer reviews which have appeared in the numbers before us, we would mention those of Weber's *History of European Philosophy*, Zimmermann's *Kant and Positivism*, Poetter's *Personal God and the World*, Flint's *Philosophy of History in France and Germany*, Brentano's *Psychology*, Dühring's *Critical History of Philosophy*, Vitringa's *Man as an Animal and Spiritual Being*. R. FLINT.

Athenæum. Monatsschrift für Anthropologie, Hygieine, Moralstatistik, Bevölkerungs- und Culturwissenschaft, Pädagogik, höhere Politik und die Lehre von den Krankheitsursachen. Herausgegeben und redigirt von Dr. EDWARD REICH. Erster Jahrgang. Hefte 1-3. Jena, 1875.

This periodical was started in April last. As its title shows, it is of a very mixed or miscellaneous character, and treats of various subjects which we are not required to notice here. Its aims are described in its prospectus as being at once scientific and practical—the knowledge of the whole man singly and collectively, and the furtherance of the bodily and moral, the individual and general health and welfare. "On the foundation of physiology and statistics we would raise the lofty watch-tower from which we may descry the entire nature of man, the connection of our race with the world and with civilisation, and the sources of the sufferings which afflict individuals and communities; and the results ascertained we would apply to maintain the health and prosperity of individuals and of humanity, to avert maladies, and to remove their causes." Such is the idea which has originated the publication before us. Without ceasing to be scientific, its articles are intended to be of interest not merely to specialists but to educated persons of all classes.

The first number begins with an article by the editor on "The relation of Heredity to the National Mind." It is essentially a statement of the conclusions which Haeckel, Galton, Ribot, and a number of recent writers on mental pathology and the transmission of diseases have arrived at on the subject of which it treats. The second article, which is also continued in the following number, is on "The bearing of the Doctrine of Descent on Morals and Politics." It is by a very independent thinker, Dr. F. A. von Hartsen, who writes oftener in German and French than in his native Dutch. The first part of it is a plea for the preservation of the weak and deformed, and for the non-prohibition to them of marriage, and an attack on what he calls "the slaughter-house theory" of certain Darwinian moralists; the next is an endeavour to show that it is futile to explain by heredity either monarchy or aristocracy, and that the intellectual and moral qualities have necessarily far less chance of being transmitted than physical peculiarities; and its concluding section is a refutation of those who have sought in Darwinianism for a justification of the doctrine that might is right, and that a strong people may crush or exterminate a weak one if it find it convenient for itself so to act. In No. 2 Dr. Reich has an article on "Suicide," in which he indicates the reasons why the proportion of suicides to population differs within each religion, and why it varies with profession, degree of culture, age and sex. He shows that the causes of suicide are largely of a moral and removable nature, so that society has it in its power greatly to diminish the evil. The essay of Dr. Hartsen on "The Conciliation of Religion and Materialism," the first part of which is given in No. 3, the reviewer has already seen in *La Critique Philosophique* for 29th April, under the more appropriate title of "Materialism and Immortality." It is intended to prove that the principle of materialism, far from shaking the dogma of immortality, is its most solid support. Of books reviewed which have an interest to the student of psychology and philosophy we would mention Haeckel's *Anthropogenie*, Oettingen's *Moralstatistik*, Ribot's *Hérédité*, Hartsen's *Anfänge der Lebensweisheit*, Galton's *English Men of Science*, Kramar's *Problem der Materie*, and Hartmann's *Wahrheit und Irrthum im Darwinismus*. They are all noticed by Dr. Reich himself. German editors of philosophical journals are certainly not idle men. R. FLINT.

III. Psychology in Holland.

Since the publication of Professor van der Wijck's *Zielkunde* (psychology) in 1872, which was reviewed in the *Academy* for that year, no work of any importance bearing upon subjects of metaphysical and psychological investigation has appeared in Holland. The second part of the *Zielkunde*, which has for some time been expected, has not yet come to hand.

In the absence of anything more definite, it may be well to point out to English psychologists what we may reasonably expect from Holland. The Dutch writers of the present day attempt to hold a position between English and German philosophers, and endeavour to mediate between them. This was the position occupied by Opzoomer, and it has been taken up by most of his disciples, who try to mediate between German writers of the Ideal-Realist School like Hermann Lotze, and English psychologists like Prof. Bain and the late Mr. Mill. The study of Dutch psychology ought, therefore, to bring England and Germany nearer to each other, and enable psychologists in both countries to appreciate better than they do now each other's method, starting-point and general line of work.

In another and more definite line of work English Philosophy may take advantage of the labours of Dutch psychologists. The writings of Sir John Lubbock, Mr. Tylor, Mr. John McLennan, and others have familiarised us with the fact that the study of the beliefs and usages of savage tribes are of great value to the scientific student of psychology, law, and ethics. Now a great deal of the present philosophical activity of Holland belongs to the Leyden school of theologians, or, as they call themselves, the "*Modernen.*" This school maintains (1) that a comparative study of religions, especially of the great types of religions, should precede the study of theology, and (2) that theology is in all respects founded on anthropology, and is one of the divisions of the philosophy of mind, like ethics or metaphysics. With the theological worth or worthlessness of these principles we have, of course, nothing to do, but it is manifest that their application ought to enrich psychology in two ways—by directing attention to the subject of the psychological beliefs of primitive man, and so to the historical method of studying psychology, and also by throwing light upon that somewhat neglected division of the sphere of mind whose outcome we have in what is called "natural religion." Unfortunately this last year has been a singularly barren one; for the "*Modernen,*" instead of prosecuting their researches along the lines they themselves have laid down, have got entangled in the discussion of a very old, and, according to their mode of dealing with it, not a very productive problem, viz.: whether the core of religion is to be regarded as ethical or as intellectual. The psychological interest in the controversy is narrowed to a single point, whether moral intuition is for all practical purposes a special use of the ordinary cognitive faculties, or whether there is something more in it than that. The two best essays which the controversy has produced are those of Dr. Hooijkaas

Ter beschrijving van de Ethische richting, in the *Theol. Tijdschrift* for March, 1875, and Prof. F. W. van Bell, *De godsdienst als een levensrichting, die de geheele persoonlijkheid van den mensch aangaat*, in the November number of the same journal. Prof. Van Bell's paper is short, clear, and incisive; he argues from the basis of the ordinary empirical psychology. Dr. Hooijkaas is not so clear, but there seem to be deeper psychological glimpses vouchsafed to him than to his clever young opponent.

THOMAS M. LINDSAY.

XI.—NOTES.

Sense of Doubleness with Crossed Fingers.—The familiar psychological experiment known to every school-boy, and noted already by Aristotle in the *Metaphysica* (p. 1011, a 33), has often in late years been made the subject of explanation in physiological books, though with little success, as far as I have seen; the explanation consisting generally in a laboured re-statement of the difficulty. What seems to me the true explanation suggested itself once when I tried the experiment, determined carefully to mark the precise phenomenon. Crossing the second finger backwards over the forefinger of the left hand held vertically with thumb uppermost, so that the under-side of the second finger (usually in contact with the third finger) rested on the upper-side of the forefinger (side next to thumb) I placed a penholder between them, bringing it first into contact with the second finger only. Causing it then to touch the forefinger also, I was struck by perceiving this second contact coming in, as it were, higher up in space, though the forefinger was then lower down. So when the forefinger was first touched, the contact with the second finger was felt as coming in lower down, though the second finger stood then higher up. The spatial reference is still more distinct when the eyes are shut and the judgment is guided by the character of the touches alone; but the most decisive form of the experiment is with other people's fingers, their eyes being shut and the question being simply put: Does the second contact seem to you to come in higher up or lower down in space than the first? The report is always the same; and the interpretation is obvious. We perceive the contacts as double *because we refer them to two distinct parts of space.* The upper-side of the forefinger and the under-side of the second finger (sides understood as above) are to us distinct parts of space, because normally these two surfaces are not in contact with one another; and they cannot normally be touched simultaneously except by objects which are, or are held to be, two (supposing, that is, bare contact only). Contrariwise, the under-side of the forefinger and the upper-side of the second, being normally in contact with one another, mean to us one and the same space, so that when they are held apart by aught intervening, the suggestion is of a thing filling one and the same space, in other words, a single thing. It is here implied that every part of the tactile surface has a definite spatial character of its own, and about this as a fact there can be no question, whatever difference of opinion there be as to whether such character is original or derivative.

EDITOR.

Mr. G. H. Lewes on the Postulates of Experience.—In treating of the ultimate foundations of Inductive Certainty (*Logic of Deduction*, p. 273), I laid it down as essential that we should postulate or beg the Uniformity of Nature; maintaining that we could give no reason for the future resembling the past, but must simply risk it. Observation can prove that what has been, *has been;* but it cannot prove that what has been *will be.* When we run the risk and find, after the thing has happened, that our anticipation is correct, we feel re-assured, and think less and less of the danger of being found wrong; but this hardening operation does not make a logical proof.

Against this view of the postulate of Uniformity, Mr. Lewes brings the view, that to say "Nature is uniform," is an *identical proposition;* there is no hazard in it at all (*Problems of Life and Mind*, ii. p. 99). Now, to oppose an identical proposition is to bring about a contradiction in terms. Yet, at first sight, there seems no such contradiction, in saying that Nature follows one course to-day and another to-morrow; does one thing in London and another in Pekin. I should call Nature inconsistent with herself, in that loose sense of consistency that we apply to human actions; but I do not see any self-contradiction in saying that, a million of years hence, the boiling point of water at the ordinary pressure of the air is to be raised to 250° Fahrenheit.

According to Mr. Lewes, the true expression of Nature's uniformity is: "the assertion of identity under identical conditions; whatever is, *is* and *will be*, so long as the conditions are *unchanged;* and *this* is not an assumption, but an identical proposition." But now as to the conditions, in what light does Mr. Lewes view *Time* and *Place?* Are these among the conditions, or are they not? If these are conditions, I fully grant the identity; because the assertion then is that what is happening *here* and *now*, *is* happening; and nothing else is happening. But is he prepared to set aside time and place as not being conditions, as not needing to be taken account of at all? If he does, he gets the advantage of being able to affirm the Uniformity of Nature in the full extent required as a basis of Induction; but I deny that he affirms an identical proposition. It seems to me that to pass the bounds of time and place, *is* a hazard; and this is the real point at issue. I can only repeat that, as it seems to me, there is no self-contradiction in supposing that, though the physical conditions of an effect remain as they are, the effect may not be constant through all the eternity of years and all the infinitude of space. For this reason, I call the Uniformity of Nature a postulate or an assumption, and refuse to call it an identical truth.

A. BAIN.

Logic and the Elements of Geometry.—The *Syllabus of Plane Geometry* (Macmillan and Co., 1875) newly issued, after much deliberation, by the Association for the Improvement of Geometrical Teaching, includes an introductory section which sets forth the logical interdependence of certain associated theorems. In particular, four typical forms of theorem are given as standing in various important relations to one another:—

If A is B, then C is D (1)
If C is not D, then A is not B (2)
If C is D, then A is B (3)
If A is not B, then C is not D (4)

(1) and (2) are said to be *contrapositive* each of the other; (3) is called the *converse*, and (4) the *obverse*, of (1). Now, says the *Syllabus*, while (2) may be always got from (1) by logical inference, it is not so with (3) or (4); each of those by itself requires a geometrical proof independent of the proof of the original theorem; but yet both do not require to be independently proved, because they are themselves in turn (logically) contrapositive one of the other. It will therefore "never be necessary to demonstrate geometrically more than two of the four theorems, care being taken that the two selected are not contrapositive each of the other."

This view of the relations of the four propositions is not new, even in England, being found in more than one recent work. The *Syllabus*, however, makes an important advance in nomenclature. Hitherto theorem (4) has been designated by the name of *opposite*, used in such glaring inconsistency with the tradition of logical science and with common understanding—opposites plainly being propositions that cannot both be true—that it is difficult to see how the confusion could ever have been tolerated. The word *obverse*, now beginning to be employed in formal logic for what used to be called the *equipollent* proposition—a logical form that has a relation to (4) analogous to that borne by the pure logical *converse* to (3)—was suggested to the Association as a substitute for the so-called *opposite*, and, being frankly accepted, will now, it is to be hoped, for ever displace that unfortunate misnomer.

So far well, but the logician's interest in the scheme does not end with this rectification. Is it open to the geometer to appropriate the words *converse* and *obverse*, and use them in a sense which, if it is not inconsistent with, is at least different from, their original logical application? The words so aptly express the propositions which the geometer has in view, being those which in his (relatively) material science correspond to the converse and obverse of pure formal logic, that he may very fairly appropriate them. At the same time the logician may still more fairly claim that his own original use of the words shall not be put out of view, seeing it is implied (as, from the fundamental character of logical science, it cannot but be implied) in the usage of the geometer. The pure logical converse of (1) is "In at least some case where C is D, A is

B," or "If C is D, A may be B," and this is implied by the geometer in saying that *his* converse, "If C is D, A is B" (amounting to the logician's *inadmissible* simple converse of an universal affirmative proposition) needs by itself a geometrical proof. So the pure logical obverse of (1) is "If A is B, C is not other than D," and this is implied by the geometer in saying that *his* obverse, "If A is not B, C is not D," also by itself needs to be proved geometrically. Nor, if the geometer should deny that he does imply logical forms of which he may be ignorant, is the denial of any avail when he accepts (2) under the name of *contrapositive*, and thus expressly accords a place within his science to a process (contraposition) which is not only purely formal, but is, in fact, logical conversion applied in a special manner. The question of real importance, then, is the practical one, how the reference to logical principles may most effectively be made. The mode of reference adopted in the *Syllabus* cannot be pronounced in all respects satisfactory.

The scheme of the four associated theorems, though it has a certain symmetry, is open to objection in that it mixes up logical and extra-logical relations. The relation of (3) to (1), or of (4) to (1), is extra-logical, while the relation of (2) to (1) is purely logical. Would it not be simpler and better to take account only of the "converse" and "obverse" in relation to (1), and say that either of these two, by itself, needs to be demonstrated geometrically after (1), but both need not, because logic, starting with either, will give the other? Of course logic will yield a contrapositive of (1), but why particularise this as (2), when it may be assumed along with still other strictly logical transformations? In the way here suggested, a beginner would, at all events, get a distincter notion of the difference between logic and geometry; and if the plan involved the necessity of somewhat more expressly stating what is the true nature of such a logical process as contraposition, so much the better. There is some confusion in the *Syllabus* on this head.

Thus theorem (2) may unquestionably be obtained from (1) by the strict logical process of contraposition, and would now be called by most logicians its contrapositive (though, by the way, it is a negative, not a positive, proposition); but (1), although in turn it follows logically from (2), cannot be won back by contraposition, any more than a universal affirmative when converted logically into a particular affirmative can be restored, by a second conversion, to its original universal form. The process called contraposition, in all cases where it is applicable, consists of two stages—obversion and conversion. For example, the simple categorical proposition, "All S is P," becomes, when obverted, "No S is not-P," and this last, being farther converted, becomes "No not-P is S," the contrapositive, as it is called, of the original proposition. Now, obviously, this contrapositive cannot be made to yield the original "All S is P" by further contraposition (obversion and conversion), for "No not-P is S," being obverted, becomes the affirmative "All not-P is not-S," and this, being converted, gives "Some not-S is not-P," quite a different proposition from the original one. To get "All S is P" back again we must proceed, not by obversion and conversion, which together, *in this order and only in this order*, make contraposition, but by conversion first and then obversion—an order of procedure perfectly valid in logic, but unprovided with a special name. Applying this to the case in hand, as (1) cannot be called the contrapositive of (2), so neither can (3) and (4) be called contrapositives of one another: if (4) is the contrapositive of (3), (3) cannot be the contrapositive of (4).

Let it not be said that the point here insisted on is a trivial one —that it is a mere question of naming. If it is important for learners to distinguish between a geometrical process and one purely logical, as the placing of this " Logical Introduction" at the head of the *Syllabus* implies that it is, there can be no controversy as to the necessity of exactly determining the character of the logical process. To call (1) and (2), or (3) and (4), contrapositives of one another, tells the geometrical learner little more than that there is a process called contraposition, which, if applied, will often save him much trouble. As long as he works with simple typical instances of theorems like (1) and (2), it is easy for him to see that the logical equivalence, by whatever name it is called, must hold in both directions, if it is asserted in one; but, when he comes to deal with actual geometrical propositions, even not very complex ones, he will find it difficult to assign the correct contrapositive, unless he is told definitely by what fixed line of logical transformation it may always be reached. In default of special instruction, he will hardly be able to draw from the examples of contraposition signalised throughout the *Syllabus* a consistent notion of the process. At the best, these examples need a good deal of transformation, verbal, if not logical, before they could be seen by a young student to correspond with the typical theorems which are all he has to guide him. One example, on p. 16, illustrates the graver confusion, or rather the positive error of reckoning as contraposition the passage from (2) to (1). It is there said that Theorem 24, " Straight lines that are parallel to the same straight line are parallel to one another" is the contrapositive of Axiom 5 (p. 15)—" Two straight lines that intersect one another cannot both be parallel to the same straight line." In truth the theorem follows almost directly from the axiom, which is a universal negative proposition, by the process of simple (logical) conversion: there is farther necessary a change in the expression amounting to (formal) obversion, but the first was the really critical step. Here, then, it is not logical contraposition, but logical conversion, which it concerns the geometrical student to understand, not to say again that contraposition always involves formal conversion. In short, it is impossible to frame any notion of the process of contraposition which shall apply, as is required in the *Syllabus*, equally to affirmative and negative propositions, unless it is taken to mean simply the establishment of logical equivalence; and even then it would still be necessary, before making any use of the process, to determine in what different ways equivalence may be secured. We are thus inevitably brought back to the assumption of more than one process, however called.

The conclusion, then, to which I venture to come is that, unless logical principles are set forth more explicitly than in the *Syllabus* and other recent geometrical books, the reference to them is little likely to be of practical service to beginners. One thing is certain that, if logical principles were familiar to the geometrical beginner, he would both learn geometry better and at the same time, in the process, singularly strengthen his grasp of logical principles. The notion will be scouted that a boy should be expected to have learned logic before beginning geometry, and I by no means argue that he should; but I would yet maintain that nothing could be easier than to give boys along with instruction in grammar all the knowledge of logical principles that is necessary as a preparation for their instruction in geometry. For this, doubtless, it would be necessary that teachers of grammar should have learned logic, but that is not a very extravagant requirement. EDITOR.

XII.—NEW BOOKS.*

Fragments on Ethical Subjects, by the late GEORGE GROTE, Murray.

FROM the large accumulation of manuscripts left by Mr. Grote, it has been possible to rescue some interesting fragments, partly didactic and partly historical, bearing upon Ethics. These are now collected into a volume, and arranged into six separate Essays.

Four of the Essays are occupied with the more usual questions discussed in modern times in connection with Ethics—the nature of Conscience and the Standard of Morals. To the first of the two—the nature and mental origin of the Moral Sentiment or Conscience—the greatest part of these four Essays is devoted.

Mr. Grote's positions are much the same as those taken by Utilitarians generally. He disputes the instinctive origin of the moral sentiment, endeavouring to show how it can be otherwise accounted for. He disputes the personal or individual nature of conscience, alleging that it has neither meaning nor existence except with reference to society. On the same ground he lays great stress on the correlation of Obligation and Right; the ethical sentiment, he says, is a sentiment of *regulated social reciprocity* as between the agent and the society wherein he lives.

"With regard to the way in which ethical sentiment was first generated, on the original coalescence of rude men into a permanent social communion, we have no direct observation to consult, and must therefore content ourselves with assigning some unexceptionable theory. But with regard to the way in which ethical sentiment is sustained and transmitted, in a society once established, we have ample experience and opportunity for observing before our eyes. We know perfectly that children are not born with any ethical sentiment: they acquire it in the course of early education, and we can trace the various stages of the process from its earliest rudiments to its complete maturity."

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* See p. 6 above.—ED.

"You may call it a natural sentiment if you will—meaning thereby a sentiment which is formed by association, but which is quite certain to be formed more or less in every variety of human society. The foundations of the sentiment are doubtless laid in human nature; but the sentiment itself is composed of ideas and feelings gradually, and at last indissolubly, united together; the causes which determine such ideas and feelings to become associated together, being quite universal in their operation, and acting upon every individual (with certain modifications and varieties) who is brought up in anything like an established form of social relations."

He accordingly traces what he considers to be the course of the sentiment in the child, first, under self-regarding motives, and next, with the addition of sympathy; and shows it finally as naturalised in the mature mind. He sets forth with great force of illustration the sway of society over the mind of the individual—the influence of commendation on the one hand, and of reproach on the other.

"To be reproached with weakness, impotence, unfitness for the duties incumbent upon a man, ignorance of those accomplishments which are common with men of good condition, want of virile power, bastardy, ugliness, infamy of one's family, is an imputation quite as terrible and cutting as that of any ethical fault, such as dishonesty, mendacity, injustice, cruelty or ingratitude. The reproach of Euryalus to Ulysses, that he is no *ἀθλητής*, nothing better than a shipmaster, is more warmly resented than almost any other reproach in the poem."

"The genuine ethical motive is—the desire at all events of acquiring a right to the esteem of others, and if possible consistently with this, the desire of actually enjoying it—the desire of escaping conscious liability to the disesteem of others, and if possible consistently with this, the desire of escaping their actual disesteem. To a perfectly virtuous man, the consciousness that he deserves esteem will be more gratifying than the actual enjoyment of it—the consciousness of deserving disesteem will be more painful than the actual suffering of it—if he is reduced to choose between the two."

"Moralists often speak of the sentiment of ethical obligation as if it stood alone and unconnected with any sentiment of right. Looking at the matter with reference to practice, one can easily understand why they have done this; for every man is certain to set quite sufficient value on his own rights, but he is not equally certain to be sufficiently attentive to his obligations. But it is nevertheless an error to suppose that the sense of obligation stands alone; for the sense of right is indissolubly connected with it, and forms an equally essential part of the ethical man."

"When I say that obligation and right are correlative and mutually imply each other, I do not mean that every specific act which we perform, under a sense of obligation, must necessarily correspond to a specific right vested in some other determinate persons. In performing any obligatory act, the sentiment by which we are impelled is not one peculiar to that act alone, but common to that act along with a great many others; and it is that general sentiment of *ethical obligation* which correlates and is indissolubly conjoined with the general sentiment of *ethical right;* making up both together, when joined by the ideal vinculum, called a *sanction*, what is properly called *ethical sentiment.*"

He grapples with the case where the individual is at variance with the surrounding public, or the recognised authority at the time. "The judgment of others, such as an individual actually sees or hears it pronounced upon himself or upon his own conduct, very often differs seriously from the judgment of others as he conceives it. What is called his *own judgment of himself*, is the idea which he forms of the judgment of others as it would be if they possessed the same fulness of knowledge, and contemplated the matter with the same intensity of interest, as he does himself."

"This appeal to the ideal spectators, thoroughly well-informed and enlightened, is what constitutes the sense of *good or ill desert*, or merit and demerit. That estimation which I suppose myself to deserve, and that estimation which I suppose that a right-minded and well-informed spectator would accord to me—are only two modes of expressing the same thing. If the actual spectators around do not accord me this estimation, I regard them either as not right-minded or as not well-informed—I constitute myself their censor, instead of recognising them as mine."

The two concluding essays are on the Ethics and the Politics of Aristotle. As regards the Ethics, there is a very full discussion of two capital points, namely, Happiness, and what, according to Aristotle, is the chief ingredient of Happiness — Virtue. Mr. Grote comes face to face with his author in every possible phase of the theory of Happiness; and it is a curious spectacle to see Aristotle in the hands of a modern Utilitarian of the most advanced type. Doing full justice to the merits of Aristotle's conceptions, he exposes its defects with his characteristic vigour of polemic.

No less subtle and clear is his handling of Aristotle's doctrine of virtue. He is also full on the distinction of the Voluntary and the Involuntary. As to the virtues in detail, the chief stress of the exposition is laid on Justice and Equity.

The last essay on the Politics of Aristotle, short as it is, is the gem of the collection. Is displays the author in his happiest vein. Placing himself exactly at the point of view of the work he is describing, he is in full sympathy with the end that Aristotle had in view; he examines critically the means proposed for that end, and shows the bearing of Aristotle's ideal upon actual societies.

"Oligarchical reasoners in modern times employ the bad part of Aristotle's principle without the good. They represent the rich and great as alone capable of reaching a degree of virtue consistent with the full enjoyment of political privileges: but then they take no precautions, as Aristotle does, that the men so preferred shall really answer to this exalted character. They leave the rich and great to their own self-indulgence and indolent propensities, without training them by any systematic process to habits of superior virtue. So that the select citizens on this plan are at the least no better, if indeed they are not worse, than the remaining community, while their unbounded indulgences excite either undue envy or undue admiration, among the excluded multitude. The select citizens of Aristotle are both better and wiser than the rest of their community: while they are at the same time so hemmed in and circumscribed by severe regulations, that nothing except the perfection of their character can appear worthy either of envy or admiration. Though therefore these oligarchical reasoners concur with Aristotle in sacrificing the bulk of the community to the pre-eminence of a narrow class, they fail of accomplishing the end for which alone he pretends to justify such a sacrifice—the formation of a few citizens of complete and unrivalled virtue."

Considering that these were the two treatises of Aristotle that Mr. Grote was considered as most especially qualified to deal with, it is in some degree consoling to find that, while he unfortunately failed to reach them in the regular course of his exposition, he has not altogether left himself without a witness on several of the more vital themes. A. Bain.

Beiträge zur Psychologie als Wissenschaft aus Speculation und Erfahrung, von Dr. Karl Fortlage. Leipzig, 1875.

In 1855, the author published a *System der Psychologie*, in which the attempt was made to bring the psychological analysis of Beneke into relation with the abstract metaphysics of Kant and Fichte. The present work is conceived in the same spirit. The author re-affirms his adhesion to the "pure and unmixed Idealism" of Fichte, while making full use of the light shed upon the science of mind by recent researches in physics and biology. After preliminary remarks on the place of Psychology among the sciences, the author traces the rise of consciousness in the human soul; and then examines in detail the sensations of Hearing, as affording (when the physiological processes are taken into account) typical illustrations of the mind's converse with the outer world. A consideration of Space and Time forms the natural transition to the strictly metaphysical portion of the book—a prolonged discussion on the relation of the individual to the totality of Being. The author confidently predicts at no distant day a "brilliant renascence for the *Natur-Philosophie* of Schelling and the *Wissenschaftslehre* of Fichte."

Lehrbuch der Psychologie vom Standpunkte des Realismus und nach genetischer Methode, von Dr. Wilhelm Volkmann Ritter von Volkmar. 2 Bde. Cöthen, 1875-6.

The author's *Grundriss* (1856), expanded into a complete treatise of Psychology. The work is historical as well as dogmatic, considerable attention being paid to the views of English writers.

The Emotions and the Will, by ALEXANDER BAIN, LL.D. 3rd Edition,
Longmans & Co., 1875.

The present edition has been thoroughly revised, and in great part rewritten. The chapters on the leading Emotions, on Ideal Emotions, on Sympathy, and on Aesthetic Emotions (in respect of which last the author has largely profited by the investigations of Mr. James Sully), also the chapter on Belief, appear in a new form. Additions have been made to the handling of Desire, Free-will (in view of Mr. Sidgwick's position), and Consciousness. Part of the introductory chapter is devoted to a consideration of the question how far there can be a quantitative treatment of Feeling. The author also fully discusses the bearing of the Evolution hypothesis on the Emotions, and, as regards the Will, maintains that his leading assumptions (which are well-known) are equally required under that hypothesis.

The Economy of Thought, by T. HUGHES. London: Hodder and
Stoughton, 1875.

This book is intended to enlighten, at the same time, the student and the ordinary reader. Hence, perhaps, it is that the author seeks to embrace, within the compass of a small volume, such extensive subjects as Logic, Ethics, Psychology, and Religious Philosophy. The transitions of the author's "thought" are not always quite obvious. In Logic, which is intended to form the main topic, the subjectively-formal point of view is adopted.

Gott und die Natur, von Dr. HERMANN ULRICI. 3te neu bearbeitete
Auflage. Leipzig, 1875.

In this edition, as in the preceding one, the author has endeavoured to estimate the result of recent scientific inquiry; a task rendered unusually difficult by the differences of opinion of scientific men on many points of fundamental importance. These disputes touch ultimately upon the ground-problem of all science, the notion of Being—the old controversy whether Being and Matter are identical. Here the philosopher is entitled to a hearing on his own account; and the author declares himself emphatically against the growing "monistic" tendency of the students of Nature. He cannot allow that Monism explains phenomena better than Dualism. He is a hostile critic of the hypothesis of Evolution; but, both on that subject and also on Pessimism, is concerned rather with the practical consequences (real or supposed), than with the theoretical aspects, of the doctrines brought under review.

Kant und Darwin. Ein Beitrag zur Geschichte der Entwichlungslehre,
von FRITZ SCHULTZE. Jena, 1875.

An attempt to display the germs of the modern theory of Development in the speculation of Kant. The author has collected all the passages bearing on the subject. He thinks that men of science have been great losers by neglecting the study of Kant, and declares that they have much still to learn from the "greatest philosopher" of Germany.

Versuch einer Entwicklungsgeschichte der Kantischen Erkenntnisstheorie, von Dr. FRIEDRICH PAULSEN. Leipzig, 1875.

The author adopts, as the starting-point for his own investigation, the view of K. Fischer, that, between the dogmatic and critical stages of Kant's mental history, a "period of transition" should be recognised, when the philosopher of Königsberg found himself in agreement with the Scepticism of Hume; and he tries to link these periods more closely together. If Kant in the period immediately antecedent to the working-out of his critical system inclined to the stand-point of Hume, it is reasonable to suppose that the *Kritik der reinen Vernunft* would strikingly exhibit the transition. The *Kritik* must have, as essential content, a proposition which maintains the precise opposite of the dogma of Hume's Empiricism. Now, as the dogma of Hume consisted in the (to the view of Kant) negative assertion that a certain kind of knowledge is impossible, the main thesis of the *Kritik* must be positive. Such a negative proposition, as that we cannot know Things-in-themselves, is accordingly excluded. The author seeks to show that the needed principle is not the limitation of the human view to phenomena, but the assertion of the possibility of *à priori* or rational knowledge of objects. While the treatise is mainly historical, the author is not without hope that some light may be thrown on the question of the Origin of Knowledge itself. Although the language of the controversy has changed, the substance of the controversy remains. Is there knowledge of matters of fact (*Thatsachen*) through pure reason? Kant professed to adjudicate between contending schools, but really took part with the rationalists. His attempt to reach a position superior both to Rationalism and Empiricism was a failure, as the author believes similar attempts will always prove to be. The question, as put by Hume, is the real and genuine problem of knowledge.

Grenzen der Philosophie, constatirt gegen Riemann und Helmholtz, vertheidigt gegen von Hartmann und Lasker, von WILHELM TOBIAS. Berlin, 1875.

In this large polemical work the author discusses a number of subjects which appear to him to lie near the boundary line between science and philosophy, and which are therefore likely, from a misapprehension of their true nature, to render this boundary indistinct. Among the principal themes enlarged on are the rational possibility of a space of more than three dimensions, as conceived by Riemann and Helmholtz; the controversy between the "empiricists" and the "nativists," with respect to the origin of space-notions; the attempt of von Hartmann to arrive at a metaphysical principle by "the inductive methods of natural science," and finally a number of problems connected with art, ethics and politics, suggested by a work of Eduard Lasker (*Ueber Welt- und Staats-weisheit*). The author contends for a philosophical solution of certain questions as a necessary complement to the constructions of the sciences (that is a distinct meta-physic), which he commonly defines in Kantian terms as a determination of the nature of knowledge

(*Erkenntnisstheorie*), but which, in other places, he makes to include all departments of subjective knowledge (psychology).

Die philosophischen Schriften von Gottfried Wilhelm Leibniz. Herausgegeben von G. J. GERHARDT. Bd. I. Berlin, 1875.

This new edition of the philosophical writings of Leibniz will contain all that has been printed hitherto, together with whatever of value may not have seen the light, which the editor is able to procure or discover. In the arrangement of the collection, the entire correspondence will precede the regular treatises. The present volume contains the letters which passed between Leibniz and Thomasius, Otto von Guericke, Spinoza, Conring, Eckhard, Molanus, Malebranche, Foucher; letters to Duke Johann Friedrich; a long letter (undated) to Arnauld; and two unanswered communications to Hobbes. The correspondence seems to be arranged, as far as possible, with a view to showing the course of Leibniz's speculation. Some matter, not strictly philosophical, is included, but generally for the sake of the metaphysical references. W. C. COUPLAND.

XIII.—NEWS.

Professor Wundt (who now holds the place of ordinary Professor of Philosophy in Leipzig, having been called thither from Zürich, where he has professed philosophy for the past year) will contribute to the next number of MIND an account, addressed to psychologists, of a new and original research on "Reflex Action and the Mechanics of Central Innervation."

Simultaneously with MIND, a French philosophical journal, very similar in its scope, begins to appear. The *Revue Philosophique de la France et de l'Etranger* (Germer Baillière) will be issued henceforth on the first of every month, under the direction of M. Th. Ribot, well-known in this country by his *Psychologie Anglaise* and other works.

Professor F. A. Lange, of Marburg, died on the 21st of November last. It was mentioned some months ago that his *Geschichte des Materialismus* was being translated into English. We should be glad to hear the statement confirmed.

Mr. Henry Sidgwick has recently been appointed Praelector of Moral and Political Philosophy in Trinity College, Cambridge. His lectures in this newly constituted post are open to the whole university.

Mr. James Ward has been elected to the first Fellowship in Trinity College, Cambridge, given for proficiency in the Moral Sciences only. The election was decided partly by an examination, partly upon dissertations which the candidates (4) were allowed about a year to write. Mr. Ward's subject was the "Relation of Psychology to Physiology."

Mr. Herbert Spencer's *First Principles*, translated into German in 1874 (by Dr. B. Vetter), has begun to receive attention from the critical journals. The writer of a discriminating notice in the *Literarisches Centralblatt* (28th August, 1875) makes one very curious remark. Observing that Mr. Spencer does not cite Hume, "the most important" of English thinkers, among the advocates of the relativity of human knowledge, he says the omission is not really to be wondered at, seeing that for well-known reasons it may still be "precarious" to mention Hume's name to English ears. So hard is it for one nation to know the truth about another!

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OF

PSYCHOLOGY AND PHILOSOPHY.

I.—WHAT IS SENSATION?

The many difficulties which lie in the way of psychological investigation are complicated by the deplorable and inevitable ambiguity of communication, resulting from an absence of strictly defined technical terms. If the British Association, or the Royal Society, would call upon English psychologists to draw up a list of terms which they were prepared to employ in a strictly defined sense, it would have as great an effect on the study of psychical phenomena as the botanical nomenclature of Linnæus, or the chemical nomenclature of Lavoisier, has had on botany and chemistry. Such terms as Sensation, Perception, Consciousness, Soul, Volition, &c. would not then be left in their present chaotic state, their meanings not only varying in various treatises, but varying in different parts of the same treatise.

I select Sensation for illustration. The term will be found employed with such widely different meanings, even in the same treatise, as to render many propositions in which it occurs truisms, or transparent absurdities, according to the interpretation. It sometimes means the simple reaction of a sensory organ—as in a sensation of colour or of temperature. It sometimes means a complex of many reactions—usually called perceptions—as in a sensation of sight. It sometimes means only one element in a judgment; at other times it means the judgment which groups the present impression with the revived impressions of other sensory organs. No one hesitates to say that he had "a sensation of water" on placing his hand in a tub. The complex of elements here represented by the term is appreciated when we reflect that in it there were sensory reactions of contact, temperature, and muscular movement, rapidly succeeding each other. Unless the feeling of *touch* had been followed by a feeling of *temperature*, and these by one of *yielding* to the movement of the hand, there would not have emerged the judgment: "this is water;"* nor unless these feelings revived past feelings would this judgment have been formed: the infant would feel the contact, the temperature, and the yielding movement, but would not group these into the judgment "water." In like manner no one hesitates to say that among the various "sensations of sight" which he has just had, were those of a street, a crowd, a horse, and a coal-waggon. When sensations thus stand for complex perceptions it is very easy to justify the proposition that Sensation is the source of all our ideas; a proposition which appears utterly untenable when each sensation is understood as the simple reaction of the sensory organ.

Another, and more misleading, ambiguity arises from the want of an adequate distinction between Sensibility and Consciousness—the two terms being sometimes interpreted as synonymous, sometimes as different. Thus the question often arises whether we can have sensations without consciousness, or whether a sensory reaction is rightly named a *sensation* when it is unaccompanied by consciousness? The physiologist finds himself compelled to speak of "unconscious sensations" if he would explain many phenomena. To the psychologist, on the contrary, such language is nonsense, equivalent to "unfelt feelings," or "invisible light." And there is reason for both. The physiologist is considering the organism and its actions from their objective side, and endeavouring to trace the physical mechanism of the observed phenomena. These he has to interpret in terms of Matter and Motion. The psychologist is considering the organism and its actions from their subjective side, as facts of Consciousness and not as facts of a physical order at all. He therefore interprets the changes felt, in terms of Feeling. The mechanism which is *seen* (really or ideally) in objects, is in the subject a dependent succession of *feelings*. We may see a neural process in others, we only feel a change of consciousness in ourselves; and if we *could* follow the course of a neural process in ourselves during the very changes of feeling, we should still have to separate the two aspects of this phenomenon, and express these aspects in different terms.

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* Pathological cases analyse these complex conditions. Here is one: M. Landry had a patient in whom the sensations of temperature were completely abolished in one limb, while those of contact were normal. When touched with a sponge dipped in hot or cold water, he felt the touch, but was unable to say whether the sponge was wet or dry; when it was lightly moved over the skin, he felt it as a smooth body, but not as a wet body. Landry: *Traité des Paralysies*, 1859, I. p. 180.

The physiologist therefore is, rigorously speaking, confined to the objective aspect: to him the reaction of a sensory organ is a sensation, and the sensation is this only. It is true that he has borrowed the term from the psychologist, because he *infers* that a psychical process is somehow or other involved in this neural process: the stimulus which changes the physical condition of the organ at the same time changes the state of Feeling. He sees the stimulus accompanied by a movement, and infers that it is accompanied by a feeling. But whether this inference is correct or not, what he has to deal with primarily is the neural process; and this, as the reaction of a sensory organ, he calls a sensation.

Not so the psychologist. He has only direct knowledge of a change of feeling following some other change; he *infers* that this change originated in the action of some external cause, *infers* that it is accompanied by a neural process, and is willing to hear what the physiologist can discover respecting this inferred process. The change of feeling which he calls sensation is therefore wholly a fact of Consciousness; and however he may endeavour to complete subjective interpretation by objective observations, borrowing from Physiology as the physiologist borrows from Psychology, he can no more recognise the existence of unconscious sensations than of feelings that are unfelt.

When physiologists speak of "unconscious sensations" they refer to neural processes which, although belonging to the class of sensory reactions universally recognised as sensations, are not accompanied by secondary reactions which have been specially designated by the term Consciousness.* Physicists have to speak of "invisible rays of light," meaning those rays which are of a different order of undulation from the visible rays, and which may become visible when the susceptibility of the retina is exalted. Sensory reactions which in one state of cerebral centres are incapable of determining the secondary reaction (named Consciousness), will in another state of those centres become conscious sensations.

But here again the ambiguity of phrase obstructs interpretation. Consciousness stands for Sensibility in general, and also for a particular *mode* of Sensibility, known as Reflection, Attention, or Thought. The former meaning is an extension of the term similar to that which has been given to the term Rose: this term originally meant *red*, and afterwards a particular red flower; yet we have now 'yellow roses' and 'white roses,' because the term has dropped its original signification of colour, and retained only that of particular flower. So Consciousness has dropped its original significance of Reflection or Thought, and retained only that of Sensibility or sensory reaction. But while this extension of the term Rose has been universally allowed, the extension of the term Consciousness has been far from universal; indeed the majority of psychologists separate Sensation from Consciousness, and declare that to have a sensation and be conscious of it are two different things. Different they are, if Consciousnesss means *not* the sensory reaction, but a secondary reaction in other parts of the organism. In this sense we may be said to hear a sound (to have the sensation) without being conscious of hearing it, as we can have a congested liver without knowing it. But in both cases the sensitive organism has been affected; its condition changed; and the question is: are all changes in the sensitive organism to be included under the term Consciousness, or only some changes?

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* Unconscious sensations are defined: "les phénomènes sensitifs qui ne diffèrent des sensations perçues que par le défaut de transmission à la conscience."—Landry: *op. cit.* p. 166.

The ambiguity becomes more striking in the fact that precisely in the same sense in which we are said to act unconsciously, and to have unconscious sensations, we may be said to have unconscious thoughts. Both sensation and thinking go on sometimes in the broad daylight of consciousness, at other times in the dim twilight of unconsciousness; sometimes the particular sensations or thoughts are "attended to," discriminated from among the hurrying streams; at other times they pass undistinguished. Now when Psychology is called the science of the facts of Consciousness we must either exclude sensation and thought from the facts, or we must cease to speak of them as occurring unconsciously. We are not at liberty to define Vitality as the activity of the Organism, and then speak of certain actions of the Organism as not being vital.

Sensibility is perhaps a less ambiguous term, and has the double advantage of expressing both the objective and the subjective aspects of the phenomena. It points to the sensory organism, and to the feeling which is the psychical aspect of the sensory reaction. We never do, indeed we never can, entirely separate the objective from the subjective aspect in any mental phenomenon; but so far as the separation is practicable it may be expressed by keeping the term Sensation for the objective, and Feeling for the subjective aspect. The physiologist therefore will be occupied solely with the neural process in his endeavour to localise the observed functions in their respective organs. The psychologist will be occupied solely with the psychical process in his endeavour to analyse an observed function into its elementary feelings. Each requires the aid of the other; each supplements the other. The convergence is more indispensable than is generally suspected. As Physiology is Anatomy in Action, Psychology is Physiology in Feeling. The anatomical analysis of the organism into its organs is not possible unless guided by the indications of physiological observation: the organs must be seen in action before they can be recognised *as* organs. And these actions themselves must be analysed into their elementary feelings, localised in their respective organs. In vain the scalpel and the microscope will separate the brain into distinguishable parts and constituents; to know the function of this brain, and the significance of its parts, physiological observation is necessary; nor would this, however perfect, suffice; the psychological analysis of Feeling will be necessary to guide physiological analysis in the determination of organs.

I must not be seduced to follow further these considerations, my present purpose being simply to call attention to the existing ambiguities in psychological terms, and the pressing need there is for some convention among men of science which would once for all establish a system of definite symbols; so that for any subsequent writer to speak of sensation when he meant sensation *plus* judgment, would be as reprehensible as to speak of oxygen when he meant carbonic acid.

George Henry Lewes.

II.—CENTRAL INNERVATION AND CONSCIOUSNESS.

We are led by anatomical inquiry to conceive of the Central Nervous System, however complex the structure of its different organs, as built up in a very simple and uniform manner out of elementary forms. At all points the system may be resolved, by means of microscopic analysis, into a connected framework of fibres and cells. Its fibres which run in an unbroken course from the peripheral nerves into the central regions are regarded as apparatus which like the nerves proper have transmission as their sole function, whereas the cells, which are the characteristic elements of the central organs, are understood to be terminal or medial points, in which the action transmitted either originates or undergoes some sort of modification.

Hence there arise two principal problems for physiological investigation: first to trace the course of the paths of transmission, and secondly to determine the changes which the process may undergo through the interpolation of nervous cells. These two inquiries cannot be sharply separated from one another. On the one hand the nervous fibres are not simply conductors, but modify the action which is transmitted through them. In most cases the action as it proceeds appears to gather intensity, as was first shown by E. Pflüger. Sometimes, however, under special circumstances the opposite effect presents itself: the physiological excitation gradually subsides in the course of transmission. On the other hand the central cells appear in many cases to be inserted in a path of conduction solely for the purpose of dividing this path into several branches or of bringing about a considerable change in its direction. In these cases too we may reasonably suppose that the central cells exercise an influence on the course of the action transmitted through them. We can therefore define the first problem in the mechanics of central innervation as the determination of those changes which the interpolation of central cells occasions in the processes conducted along the nervous fibres. Now here we must either be able to assume the processes as known beforehand, or it must be possible in every single case to examine the process of innervation both apart from, and as subjected to, the influence of the interpolation of central cells.

The physical and chemical changes in the nervous fibres which are the ultimate conditions of the physiological process of conduction, are, for the most part, still unknown; and, even in so far as these changes are known, their relation to the physiological action of the nervous fibres is still a matter of doubt. The mechanical theory of nerve-conduction must therefore be based altogether for the present on the observation and measurement of its external physiological effects. Among these muscular contraction is the best external measure of the processes taking place within the nerve. Just as the mechanical theory of heat in its present stage of development is content as a rule to define heat as a mode of motion of which the more exact form is undetermined, but to which we may reason back from the external motor effects of heat, so the theory of nerve-conduction must regard innervation as a motor process in the interior of the nerve, which arises through definite external motions, the so-called nerve-stimuli, and the strength, course and duration of which may be inferred from the external motion into which it is transformed, namely the contraction of muscle. At the same time such conclusions have an element of uncertainty, since innervation is to be conceived as a complex motor process which must, wherever it is possible, be resolved into its single components. I myself have shown[*] that it is possible, through the mere analysis of muscular contraction, to resolve the process of innervation in the peripheral nerves into different processes going on side by side and to some extent mutually antagonistic. From this point of view there is opened up at the same time the simplest route to the investigation of those changes which innervation undergoes through the interpolation of central elements. That is to say, this line of investigation will have to set out with the question : "How does the process of nervous excitation (which has to be measured in its external motor effects) when produced by a direct stimulation of a motor nerve differ from the same process when central elements are interposed in the path of conduction ?" Here we naturally turn to the Reflex Process as that mode of central innervation which, so far as is known, realises this last condition in the simplest manner. For reflex movement is marked off by this one circumstance from muscular contraction produced through the direct stimulation of a motor nerve.

We have to thank Helmholtz[†] for the first numerically exact observations which have been made in this direction. These, however, are concerned exclusively with the average interval of time after which the reflex movement occurs, it being proved that the process of excitation undergoes a considerable retardation in its transmission through central elements. Next we must reckon the observations which Pflüger[‡] has collected relating to the laws of conduction of reflex nervous action and which point to a varying disposition of the central substance with respect to the conduction of excitations according to the direction in which they arrive and depart. These last researches have so far however yielded only qualitative results. Finally it is to be mentioned that more recently the attention of several observers, Setschenow[§] being the first, has been directed to the peculiar phenomenon that different reflex excitations exercise in certain circumstances a mutually inhibitory influence, and that similar inhibitory influences can issue from the stimulation of the higher central structures. Several of these researches have been published since the conclusion of my own investigations of which I am about to offer a short summary. I shall indicate at the proper places the points in which my results do or do not coincide with those of other observers, while describing the course which my own researches have taken. As regards technical materials and methods I shall in these pages, where I am seeking to interest psychologists and philosophers in the general conclusions to be drawn from my labours, content myself with naming what is essential to the understanding of the results, reserving the rest for a more elaborate publication which will address itself to the narrower circle of physiological experts.

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[*] *Untersuchungen zur Mechanik der Nerven und Nervencentren*, Abth. I. Erlangen, 1871.

[†] Pflüger's *Archiv für Anatomie und Physiologie*, 1850, 1852.

[‡] *Die Sensorischen Functionen des Rückenmarks*, Berlin, 1853.

[§] Setschenow, *Ueber die Hemmungsmechanismen für die Reflexthätigkeit des Frosches*, Berlin, 1863 ; Setsch. u. Paschatin, *Neue Versuche am Hirn u. Rückenmark des Frosches*, Berlin, 1865 ; Setsch. *Ueber elektrische u. chemische Reizung der sensibeln Rückenmarksnerven*, Graz, 1868.

The investigation begins (I.) with the *simple reflex excitation of the spinal column,* the various forms of which under their respective normal conditions we will seek to determine. Among the different forms of reflex conduction the simplest is (1) the *unilateral* variety, in which the excitation is passed on from a posterior root to the anterior root belonging to it. Next to this is (2) *transverse* conduction, in which the excitation of a sensory root of the one side is transmitted to motor roots of the other side given off at the same height. The most complicated form is (3) that of *longitudinal* conduction which takes place along the axis of the spinal column from higher to lower nerve roots or conversely, and which again may be either unilateral or transverse. With these inquiries into the conduction of reflex processes we shall need to connect another question (4) that of the *influence of the spinal ganglia on reflex excitation.*

In the second place (II.) we will inquire into the subject of *reflex excitability and its changes under different conditions;* and more particularly (1) the influences of *preceding stimulations,* (2) the effects of *temperature,* and (3) certain *toxic* effects which alter the reaction of the spinal column to reflex stimuli.

A third subject of inquiry (III.) will be the influence which is exerted on the reflex process by the *simultaneous excitation of other nerves or nerve-centres.* Here our attention will have to be directed (1) to the interference of stimulations acting simultaneously upon different parts of the *spinal column,* and (2) to the effect which the *higher nerve-centres* and their stimulation produce on the reflex process in the spinal column.

Only after we have thus examined the subject from different sides shall we be able (IV.) to discuss the *essential qualities of the reflex process and the nature of central innervation generally.* Finally (V.) we may consider the psychological bearings of the inquiry, and seek to understand in general the *relation between central innervation and consciousness.**

I.

According to Pflüger the general law of conduction of reflex action is as follows: first of all with moderate stimulation reflex contraction appears only on the side on which the stimulation takes place; with increasing stimulation the muscles lying symmetrically on the other side are also thrown into a state of contraction; later on this state of contraction extends upwards and downwards till at last all motor nerves which spring from the spinal column and the medulla oblongata are simultaneously excited. This law however supplies only a qualitative expression for the variations in intensity of the stimuli required for unilateral, transverse and general reflex excitation. Nor is any account given of the precise course of the reflex excitation, and more particularly of the various degrees of intensity with which the stimulation travels in different directions within the central organ. To supply this deficiency it is necessary to substitute a quantitative investigation. We must obtain an exact record of the series of changes making up the reflex contractions, and this is best secured by the following device. The reflex contraction under examination is compared with a second contraction effected in the same group of muscles through another stimulation applied at exactly the same moment of time. This other contraction may either be produced by a direct stimulation of the motor nerve or be itself a reflex contraction. The direct form is employed in the investigation of simple unilateral reflex action. In order to secure as far as possible similar conditions for the phenomena to be compared, we select in both cases such an intensity of the stimulus as will make the amounts of contraction (represented graphically by height of curve) equal. In this way the difference of intensity in the stimuli supplies a measure for the difference between the reflex and the direct excitability. In the investigation of transverse reflex conduction and of longitudinal conduction in the spinal column we commonly use for comparison not direct contraction but simple unilateral reflex contraction; for in these cases we are concerned with relatively great retardations and inhibitions in the transmission of the excitation through the spinal cord. It should be added that the research in its main parts depends on the use of the pendulum-myograph, which gives the means of recording contractions that follow very closely on one another. The subject of experiment is always a frog, and the stimulus is an electric (generally induction) current.

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* The first three sections that follow in smaller type are given in abstract only, and the author is not responsible for them in their present form. Sections IV. and V., as well as the Introduction, are translated *in extenso*.—Ed.

(1.) *Unilateral Reflex Excitation:* Simple unilateral reflex excitation lends itself more especially to the investigation of the general features of the reflex process and of the changes which this undergoes under different conditions. Overlooking for the present all changes of reflex excitability, we have here to consider how the strength of the stimulation affects the commencement and the course of the reflex process.

The reflex contraction differs under all circumstances from the second contraction (produced by direct stimulation of the motor nerve) in two respects: it commences *later* and it is of *longer duration.* The first difference depends on the intensity of the stimuli which is known to affect the period of "latent excitation" (viz. that in which the muscle is apparently still at rest). Thus the reflex process is greatly retarded relatively to the other when the direct stimulus is strong and the reflex stimulus weak, and slightly retarded when the direct stimulus is weak and the reflex stimulus strong. In this latter case the difference may become infinitesimal so that both contractions apparently commence at the same instant, though the reflex contraction never *precedes* the other. As a rule even the strongest reflex excitation will undergo as compared with the weakest direct excitation a certain delay, though the quantity may be too small for determination by our chronometric instruments. On the whole, too, the latent period of the reflex process varies with the alteration of the strength of the stimulus far more than the latent period of the direct contraction. Very powerful stimuli usually bring about tetanic reflex processes, but at the same time even the weakest reflex processes have a considerably longer duration than direct contractions.

As soon as the two contractions are of approximately equal height, the difference of the latent periods constantly amounts to a very considerable quantity, more especially if we remain below the maximum of contraction. Only when we do so can we be at all certain that equality in the contractions means also equality in the excitations. Now with equal intensity of the excitations the velocity of transmission in the nerve remains unaltered. Hence it is only in the case specified, in which there is either an equal amount of contraction below the maximum or a bare attainment of the maximum, that we can be certain that the difference of the latent stimulations signifies the period required for the transmission of the stimulation inside the grey substance, or, as it may be called, the *reflex period.*

In order, then, to determine the absolute magnitude of the reflex period and of its variations with varying intensity of the stimulation, we need a careful graduation of the stimuli so as to secure in every single experiment perfect equality between the direct and reflex contractions. In a normal condition of excitability of the spinal column this end must be attained by making in every instance the reflex stimulus stronger than the direct stimulus of the nerve. Now in all thoroughly successful experiments there shows itself *a diminution of the reflex period with an increase in the amount of the two contractions.* For example, whereas the height of the contractions rose from 1·5 to 4 millim., the reflex period fell from 0·027 to 0·015 sec. At the same time when the animal is in a normal condition the reflex period generally fluctuates within these two limits of time upwards and downwards. It seldom rises above 0·030 sec. except the excitability is in itself an abnormal one or is altered through poisons and other influences.

These differences between reflex and direct contraction correspond perfectly to the differences that are observable between two contractions effected through applications of a stimulus at points unequally removed from the muscle. In this case, too, the contraction produced by the more distant stimulus constantly manifests a retarded commencement and an increased duration, only it must be added that in the case of reflex contraction both differences are considerably increased. Thus we see that the influence exercised on the progress of the stimulation by the interpolation of the central grey substance is equivalent to the effect of a very long tract of nerve.

Finally, both these properties of reflex contraction—retarded commencement and increased duration—are closely related to one another. The greater the delay in the commencement of a reflex contraction the larger, as a rule, the increase in its duration. Accordingly reflex processes whose commencement is very greatly retarded have always in addition a tetanic character. On the other hand the converse is not always true: it is possible for reflex contractions to become tetanic without on this account commencing any later than in ordinary cases. It should be noted here that even the normal reflex process owing to its long duration stands on the boundary between contraction and tetanus. Now this tetanic character of reflex contraction may increase without the reflex conduction being retarded. On the other hand where the transmission of the excitation within the grey substance occupies an unusually long period, the duration of the excitation also is always more or less increased.

(2.) *Transverse Conduction:* In investigating this variety of reflex conduction we proceed according to the same principle as before with the single difference that the second contraction is produced through unilateral reflex, and not direct motor, excitation. It may be observed that stronger stimuli are requisite for the production of transverse and longitudinal than for that of unilateral reflex processes. If we choose for the two reflex processes to be compared stimuli of equal intensity, the two contractions will differ in the fact that the one arising through transverse excitation (*a*) commences later, (*b*) is smaller in amount, and (*c*) has a longer duration. If however the transverse reflex process is very weak, the latter difference disappears owing to the fact that weak contractions commonly have a shorter duration. The retardation of the transverse reflex excitation in relation to the unilateral, fluctuates in general between 0·006 and 0·012 sec. Since however the transverse excitation is also the weaker, and weak excitations are always conducted more slowly in the nerve, this period cannot wholly be referred to the retardation produced by the grey substance. In order to isolate this element of retardation as far as possible, it is necessary to examine rather those reflex excitations in which the two stimuli are of different intensity and are so graduated that the amounts of the resulting contractions are equal, while at the same time (for reasons already given) they lie below the maximum limit of contraction. In experiments arranged in this way, the retardation reaches only from 0·004 to 0·006 sec. It will thus be seen that the retardation of transverse reflex excitation corresponds to from one-fourth to one-fifth of the unilateral reflex period as formerly determined. This retardation too is greatest in the case of feeble excitations, and diminishes with their intensity.

(3.) *Longitudinal Conduction:* In investigating this variety of reflex process, we compare the reflex contractions produced by stimulating two unilateral sensory nerves as far apart as possible in the column, as for example the nerves of a fore and hind leg of a frog (the brachialis and the ischiadicus). In this case the usual difference in the two contractions is the same as in that of unilateral and of transverse reflex excitation: the reflex process produced in the hind leg by stimulation of the higher nerve commences later and for the most part requires stronger stimuli. Nevertheless the amount of the difference is here subject to greater fluctuations than in the previous cases. Now it is very considerable, now it assumes a minimal and in rare instances even a negative value, the upper reflex process commencing somewhat earlier than the lower. Very probably these deviations proceed from the unequally rapid degeneration of the nerves or of the different regions of the spinal column.

(4.) *Influence of the Spinal Ganglia on Reflex Conduction:* It is found that the nerve roots are more excitable than the nerves below the spinal ganglia, much stronger stimuli being required in order to effect a reflex contraction through the latter. Further experiments show conclusively that the single condition of this difference consists in the interpolation of the spinal ganglia.

II.

(1.) *Influence of preceding Stimulations:* Every reflex excitation which does not last too long leaves behind it for a certain period a heightened reflex excitability. This is equally true whether the modifying and the testing stimuli act on the same fibres or whether they are applied to different fibres and even to such as enter the spinal column on different sides. This shows that the effect is not due to any modification of the sensory fibres. It can also be demonstrated that it does not depend on any change in the motor fibres, for these are found to be at the time in a state of exhaustion. Thus the same reflex stimulus which exhausts the peripheral nerves increases the excitability of the central substance of the spinal column. The increase, however, gives place afterwards to a state of exhaustion, the interval depending on the animal's energy at the time. Further, even in the case of the peripheral nerves, stimulation is followed by a stage of increased excitability, only that here it disappears very rapidly and gives place to exhaustion. Thus the central substance differs from the peripheral fibres only in the mode of progress and duration of these changes.

(2.) *Influence of Temperature:* A considerable lowering of the bodily temperature produces if not unduly prolonged (*a*) an increase of reflex excitability, and (*b*) a retardation of the reflex processes, as manifested both in a later commencement and in a longer duration. These results correspond to those obtained by subjecting the peripheral nerves to the influence of low temperature. Shivering, it may be remarked, is but one manifestation of the increase of reflex excitability by cold.

(3.) *Toxic Effects:* The results of poisoning on the reflex process are found to be as follows: (*a*) Increase of reflex excitability (being greater and more lasting, the higher the animal's vitality), (*b*) gradual transition from reflex contraction to a condition of reflex tetanus (which occurs the more quickly the lower the animal's vitality), (*c*) increase of the reflex period, by which the ordinary duration is occasionally multiplied tenfold.

III.

(1.) *Interference of Reflex Stimuli:* By this is meant the simultaneous action of stimuli on different fibres springing from the spinal cord. The reflex process which occurs when a given sensory fibre is stimulated alone, is compared with that which ensues when the same fibre is stimulated during a permanent stimulation of another sensory fibre. The two fibres stimulated may be unilateral and of equal height, or bilateral, or of different height. In the first case there results in the majority of instances an increase of reflex excitation, though an inhibition may take place instead if the interfering stimulus is very weak or the vitality of the animal very high. Also in the other two cases we meet with both an increase and a diminution of reflex excitation, only that here the inhibitory effect is the more frequent. In all cases after the animal's energy has been exhausted, the effect of inhibition gives place to a more or less considerable mutual augmentation of the reflex processes. If we compare these results with those obtained by compounding different stimuli in the same peripheral nervous fibre, it becomes apparent that the augmentation of the reflex process by the interfering stimulus must be ascribed in part at least to the superposition of the molecular vibrations in the peripheral nerves. It is quite otherwise with the inhibitory effects, which differ *in toto* from those which present themselves as transitory phenomena in the peripheral nerves. Consequently we must refer those effects of inhibition to the activity of the central substance. At the same time it must be borne in mind that the phenomenon of inhibition is not a specific property of the central organ but only presents itself here in a more striking form, in respect of amount and duration, than in the peripheral nerves.

(2.) *Influence of the Higher Nervous Centres:* Setschenow first observed that the stimulation of certain regions of the brain leads to a diminution of reflex excitability, and he inferred that these regions are special inhibitory organs. But as the difficulties of localising these central stimulations are so great, it is better to overlook any conclusions respecting the influence of particular parts of the brain on reflex excitation and to concentrate attention on certain general relations which seem to be discoverable in these observations.

It is found that, so long as the stimulation of the central parts leads to no visible external effect, its influence on a simultaneous reflex process is very uncertain, but, when manifestations of pain occur, this influence never fails to reveal itself. It shows itself either as an intensification or as an inhibition of the reflex process. The former occurs when the emotional movements engage the same muscles as are acted on in the reflex process, and consequently is the result of a summation of excitations. When the same muscles are not involved in the movements of pain, the effect on the reflex process is an inhibitory one.

Here then we have to do with a class of phenomena analogous to those of interference between the stimulations of different spinal sensory nerves. In the stimulation of the higher central regions, also, the intensification of the reflex process only presents itself when the stimulus acts on sensory nerve-fibres. Hence it may be inferred that in this latter case, no less than in the former, the augmentation of the reflex process results from a summation of stimulations. On the other hand we must suppose that whenever the conditions of such a summation do not exist, the excitation of any area of grey substance in which sensory nerves terminate (be they those of the spinal column or of the brain) has an inhibitory influence on the excitation of other and similar areas. This view should throw light on the well-known phenomenon that the reflex excitability of the spinal column increases when the brain is removed. So long as the brain is intact, there goes on, simultaneously with the stimulation of the spinal column as a reflex organ, a stimulation of those collections of grey substance in the brain in which the sensory fibres terminate. Now we have found in general that simultaneous stimulation of central regions in which centripetal fibres terminate has an inhibitory influence, provided the two reflex excitations do not become compounded in the same motor fibres. Thus one and the same peripheral stimulation, by producing excitations in different parts of the centres, may occasion an effect of inhibition.

IV.

We have found that excitations which have been conducted to the central substance can undergo in this region two opposite kinds of transformation. They can be either *inhibited* or *intensified,* and both changes are favoured by the circumstance that the central substance is already in a state of excitation. Hence there arises the question under what conditions the inhibition and the augmented excitation proceed from the interference of stimuli. This question immediately conducts us to another, namely, whether the two transformations proceed from different parts of the central substance. With respect to inhibition within the spinal column there are two regions in either of which we may suppose the inhibitory process to take place. Either the interfering stimulus may be conducted further in the posterior column, and so intersect the principal excitation immediately after its entrance into the grey substance, or, since according to the universal law of reflex conduction it enters the anterior cornua, it may effect the inhibition in a path which connects the motor central regions, that is to say, through central fibres lying between different portions of the anterior cornua. In a similar way we may conceive the inhibition which proceeds from the higher central regions, either as a process which is confined to the region where the sensory nerves end, or as one which passes out from motor centres in the brain to the points of origin of the motor spinal nerves. In the latter case the inhibitory process would be conducted by the same route as motor excitation. In support of this conclusion the fact might be quoted that the Will too is able to suppress movements. On the other hand, it should be observed that inhibition through the will may possibly be conducted by quite other paths than the voluntary excitation of the muscles. We may conceive the inhibitory operation of the will also as an *indirect* one, which is first of all directed to the region of the sensory nerve-terminations, and only produces the actual inhibition when setting out from these. There is, indeed, nothing unreasonable in the hypothesis that the will is capable of operating on sensory regions, since we constantly observe such an effect in the voluntary control of images of fancy and of memory. There is one observation which positively supports the view that inhibition is always a process which takes place between sensory central tracts, namely, the connection of the inhibition which proceeds from the higher central organs with the feeling of pain. To this must be added as a yet more decisive negative instance the following fact. When different stimulations interfere with one another in motor fibres, an increase in the excitation is always observable. A similar augmentation also manifestly takes place when the same motor central point is set in a state of excitation by different fibres. Hence it is plain that sensory stimuli which are unilateral and act at the same height—that is, which operate most directly on the same motor centres—most easily cause an increased reflex excitation. Accordingly, it is without doubt the simplest supposition, and one which is most consonant with the facts, to refer the phenomenon of interference which occurs with two simultaneous sensory stimulations to a double reciprocal action—(*a*) to one taking place between the stimulated sensory central points by means of central fibres running between these, and attended with the external effect of *Inhibition;* and (*b*) to one taking place between motor central points, to which the sensory stimulation is transferred through a reflex process, by means of motor central fibres connecting these points, and attended with the external effect of a *Summation of excitations.* The influence of the will on reflex processes may be regarded as a case of this double action. For the will can either occasion an excitation of the same muscles which lie in the path of the direct reflex conduction, and so intensify the reflex movement, or react on the sensory central parts which produce simultaneously with the reflex process a feeling of pain, and thus inhibit the reflex process. In this way we arrive at a general understanding of the double consequence of an interfering sensory stimulation, namely, as a result of its double mode of conduction; that is to say, (*a*) of the transference to other sensory central parts, including those that enter into the reflex-path immediately under investigation, and (*b*) of the transference to centres of movement, among which again may be included those that are concerned in the reflex process.

Thus we arrive necessarily at the conception that the form of Interference depends on the mode of connection of the central structures. There must be fibrous connections of the cells which in a special manner conduct inhibitory effects, and these are according to all appearances the connections of the sensory cells. On the other hand there must be fibrous connections which subserve a summation of excitations, and these are plainly the connections of the motor cells. Since, however, the general laws of the physiology of nerves render improbable the supposition of a specific difference of the conducting fibres, we are left to seek the proper ground of the special form of inhibitory effect in the different *mode of termination* of the fibres within the central ganglion-cells. We must assume on the one hand that the sensory fibres terminate in the sensory cells in such a way as to favour not only the extinction of the stimulation, but also the inhibition of other stimulations conducted to the same cells; on the other hand that the same fibres terminate in the motor cells in such a way as to promote a diffusion of the excitation, and as a consequence of this an augmentation of other excitations conducted to the same central structures.

It is obvious how we may connect this difference of the central cells with their physiological function. The sensory cells have, as we know, for their special function to receive stimuli, and to transform them into sensations; on the other hand the motor cells are those central points from which the external work done by the organism originally proceeds. We may further co-ordinate these conclusions with the conceptions derived from the general chemical statics of the organism. Recent biology teaches that the animal organism is not, as was formerly supposed, merely a seat of combustion, that is to say, of the formation of chemical compounds, or of the transformation of unstable into stable combinations, but that in it, as in plants, there takes place as well a process of decomposition, that is, transformation of stable into unstable and relatively complex combinations. More especially the nerve substance appears to be a seat of such decomposition, for some of the matérials of nerve (as Lecithin) are more complex and more unstable combinations than the albuminous and fatty substances which the animal body absorbs in its nutriment. Now all external work, like the evolution of heat or muscular contraction, depends on a process of combustion, that is on the formation of stable compounds. Conversely, a process of decomposition cannot take place without a disappearance of external work. But, as a rule, external work is liberated in the motor central tracts and disappears in the sensory cells. This contrast, however, does not hold good as a universal law. For example, reflected sensation is a phenomenon which, without doubt, involves a diffusion of excitation among sensory central parts: on the other hand the fact that the stimulation of a motor fibre never passes beyond its original cell in a centripetal direction may be best explained as a result of inhibition which possibly has its basis in the particular form of termination of the motor fibres within the anterior cornua. In this way we reach the conclusion that in every ganglion-cell there take place simultaneously processes of combustion, resulting in external work, and processes of decomposition in which external work disappears. In the sensory cells, however, the process of decomposition predominates; in the motor cells the formation of stable combinations. In the former, therefore, we observe a disappearance of external work, and, whenever the function of the cells is raised through external stimuli, an inhibitory effect on the work done by other central structures standing in close connection therewith. In the motor cells, on the contrary, we see work produced, and every stimulus which is conducted to these by the appropriate paths adds to the amount of this external work. We thus find in these mechanical properties a basis provided for the two functions of the central nervous system, of chief importance for psychology, without needing to have recourse to the old doctrine of the *specific energy* of the central parts, a doctrine which equally contradicts the facts of the physics of nerve and those of anatomy. These two fundamental functions of the nervous system are, first, the reception of external impressions and the transformation of the same into a latent condition in sensation, and, secondly, the conversion of stored-up into external work in the reflex and voluntary movements.

V.

According to the older modes of conception, Consciousness is a domain of phenomena into which the validity of general laws of nature does not extend. Thus the voluntary actions of man are withdrawn from the causal connection of external nature just because they spring out of psychological motives. In entertaining this view writers have become involved in a contradiction with a postulate supplied by that most general law of nature on which we have been constantly obliged to take our stand in the foregoing investigations, namely, the principle of Conservation of Energy. If this principle lays claim to a universal validity, we cannot withdraw from it those movements which we are conscious of only as psychologically caused. Assuming that the principle has in reality the universal validity ascribed to it by natural science, there present themselves in connection with the whole domain of the psychophysical vital actions of man two problems for scientific investigation. In the first place these phenomena must be referred to their *psychological* causes, in the second place we must determine the external causal connection out of which they arise as *physiological* processes.

We must, no doubt, bear in mind that the principle of the Conservation of Energy has to do only with motor forces, and that consequently the movements which proceed from psychological causes are subject to this principle only so far as they are *external.* The internal or psychological causation of our mental states cannot be touched directly by a law which only has reference to masses and their reciprocal action. Thus it would be futile to seek to apply this law to the synthesis of compound perceptions out of simple sensations, or to the association of ideas, or to the determination of the will, that is to say, to the principal instances of psychological causation. At the same time, as soon as these internal mental states lead to external movements, these latter fall under this principle. Hence arises the important psychological postulate, *that the internal causation of our mental states, and the external causation of our movements can never conflict with one another.* Every movement which has an internal cause (*e.g.* in conscious motives) necessarily has an external cause as well. It is certain that Leibniz had a lively appreciation of the necessity of such a connection when he put forward his doctrine of a Pre-established Harmony. But since he was entangled in the old metaphysical prejudice which split up man into two different beings, a material and a spiritual, he was only able to conceive this connection as a constant miracle. It is precisely this unavoidable corollary of Dualism which makes the hypothesis scientifically impossible.

The postulate that external and internal causality can never conflict in their results leads to two further demands of wide scientific consequence as soon as we admit that the connection of the physiological and the psychological mechanism is only conceivable from the point of view of Monism. In the first place the internal causation must be just as stable and invariable as the external; in the second place we must be able to show for every member of the internal causal chain a corresponding member of the external causal chain, namely, the physiological processes of innervation. It may happen that in certain stages of our investigations only the one or the other side of the event is open to observation; but a real solution of the problem is in every case attained only when we succeed in exhibiting both series of phenomena in their mutual penetration. In point of fact the whole of recent psychology is pervaded with a disposition to satisfy this postulate, and every step which it takes in this direction transforms the bare postulate into the actual proof of a complete parallelism between the internal and the external phenomenon.

In this manner the formation of complex perceptions out of simple sensations presents itself on one side as an operation of psychological synthesis, in which there is manifested a general property of our consciousness, namely, the tendency to fuse simultaneous sensations, and to arrange related sensations according to their intensity and strength. The same processes, however, are seen to repose on a connection between impressions of sense and movements, which connection has its basis entirely in the physiological properties of the organs of sense and of their nervous centres.

A similar example of the regular concomitance of psychological and physiological processes is afforded by mental association, which again forms the foundation of a host of complicated psychological operations. As is well known, the psychologist distinguishes four so-called Laws of Association. According to the first *similar* mental states attach themselves to one another; according to the second *contrasting* states of consciousness sometimes enter into connection; according to the third presentations awake one another which stand in a *spatial* relation one to another; according to the fourth mental states which follow one another in *time* tend to re-enter consciousness in succession. Upon a closer consideration of these laws it becomes apparent that they can be simplified by subsuming each pair under *one* law. Similarity and Contrast may both be regarded as a principle of the *internal* connection of mental states. In this way the apparent opposition between the two disappears. The connection through Contrast just as much produces a *completion* of the first mental state by means of the second as the connection through similarity. But the fact that under certain circumstances contrasting states are able to supplement one another is to be explained by the other fact, that every presentation or idea is accompanied by a *feeling* of greater or less intensity. Now it is a peculiarity of feeling to move between extremes; consequently a feeling readily reproduces its contrast, more especially as our consciousness does not admit of monotonously continuous feelings, but can only preserve its elasticity through a certain change of feelings. In fact it is evident upon closer examination, that all cases of change of presentations which can be brought under the principle of contrast are characterised by the accompaniment of lively feelings. Thus, for example, hunger, fatigue &c. are disagreeable feelings, and as a consequence easily call up presentations which are accompanied with opposite feelings. In opposition to the law of the internal connection of mental states, Co-existence and Succession may be conceived as a principle of *external* connection. For space and time are the two external forms in which all our presentations move, and in which, therefore, they must also be connected.

But as on the one side the processes of association may be thus derived from the nature of our mental states and from the psychological forms of space and time to which they are subjected, so on the other side they can be regarded as necessarily conditioned by the laws of central innervation. It is a fundamental law of the central functions that an excitation follows a definite path the more easily the more frequently it has already traversed the same, and that different excitations combine so much the more readily the oftener they have already been connected. The phenomena of concomitant movement (*Mitbewegungen*) as well as the facts of physiological exercise and habit everywhere afford us confirmations of these truths. In this sense we may say: association is nothing more than the internal psychological image of a similar process which presents itself externally in concomitant movement. Just as in this last it is sometimes a group of muscles lying near the group directly set in motion, for example, in the movements of the third with the second or middle finger, at other times a group of muscles which has often acted in a common function, as for example in the customary movements of the arms during walking, so we find associated sometimes those presentations which have a certain affinity and whose excitations correspond to similar regions of the brain, sometimes those which are connected through space and time and whose excitations therefore have spread simultaneously or successively over different regions of the brain. In the phenomenon of increase of excitability through previous stimulation, as described in an earlier part of this paper, we have before us, so to speak, the most elementary form of this whole chain of phenomena. Indeed, it is to be expected that with every presentation called up through an external impression of sense an eddy of associations would be excited in us, were not the processes of inhibition in the central substance an effective means of limiting the diffusion of the excitations. In the rush of ideas which characterises insanity, it looks as if the brain were in a condition of unchecked excitation similar to that which is produced in the spinal column by certain toxic operations, this state being always followed, as we have seen, by a rapid exhaustion of nervous energy.

There is indeed one department of man's vital actions in which only fragments both of the internal and of the external causation are accessible to observation, and this is the highest manifestation of life—the sphere of conscious voluntary actions. Psychological causation presents itself here in the form of motives of volition. But of these motives only a few are present to consciousness, owing to its limited nature. Even in the most favourable instance all the motives cannot be accessible to our reflection, because only a part of these are acquired by us ourselves, the remainder resting on the innate and inherited properties of our consciousness. The general direction which these properties give to our volitions is named our *character*. In the fact that we recognise voluntary action as the immediate outcome of our character, consists our free-will. This, even when regarded from the psychological side, is by no means a contradiction of causality, but rather is that special form of psychological causation which manifests itself in our conscious actions. We are responsible for our actions because character is the object of moral judgment; but we form our conclusions respecting the character from the voluntary actions.

Action, however, is only one side of the manifestation of will. Parallel to this there is the influence of the will on the current of our thoughts. Here the will follows associations as its immediate determinants, though here too no less than in actions it is guided by the whole nature of consciousness, as depending on original dispositions and past experience. It is the will that first brings about *ordered thought*, which is an internal measure of character, just as action is an external. Moreover the voluntary control of our ideas reacts powerfully on our voluntary conduct, for the motives of the latter are, it is obvious, present to consciousness in the form of representations.

Indeed, not only the psychological but also the physiological causation of our voluntary actions is in its precise nature inaccessible to direct proof. As in dealing with the former we are obliged to content ourselves with understanding single threads of the causal process under the form of motives, so in considering the latter we have to satisfy ourselves with the conclusion that in the nature of the nervous centres we have a means of conceiving in general a causal connection of physiological processes separated through immeasurably long intervals. On the one side the central substance is clearly a mighty reservoir of potential energy, and on the other side it shows itself in an extraordinary measure disposed to undergo continual change through processes taking place in it, and thereby to accumulate dispositions for future processes of excitation. Thus here too we are led to that conception which is the highest metaphysical outcome of psychology in our day, namely, that man has the two attributes of natural object and spiritual being not in any juxtaposition but as wholly involved with one another—as different sides of the one and indivisible human existence.

W. Wundt.

III.—MR. SIDGWICK'S *METHODS OF ETHICS*.*

In introducing this work, the author is careful to tell us what he does *not* mean to do. He is not to give the psychology of Ethics; he is not to give its practical precepts; he is not to give its history. What he *is* to do is to discuss the *methods* of Ethics; meaning by that the different grounds assigned for the maxims or precepts of morality. In short, he is to pave the way for Practical Ethics.

The First Book is prefatory. An introductory chapter gives the scope of the whole inquiry. Ethics being the study of what ought to be done, so far as this depends on the voluntary action of individuals, its fundamental assumption is, that there is in any given circumstances some one thing that ought to be done, and that this can be known. The selected question so often discussed (the nature of the Moral Faculty) as to how we come to know what ought to be done, is really of secondary importance. Now this word "ought" points to an *end* that is desired; and the end determines the means. Moral rules are the means to some end, and as we wish the end we use the means. But the moral end may be differently assigned. For example, one may hold that all the rules of conduct prescribed by men to one another, *as moral rules*, are means to the happiness of the community. The ethical agent is supposed to be impelled to this end, and being so he follows the rules that are instrumental to realising it. The reason or motive for the adoption of the end is, however, a different thing from the suitability of the means to the end, There might be a science that would deal with this last department by itself, which might be termed the science of *Eudemonics;* a science convertible into Ethics by adopting happiness as the end absolutely prescribed.

The methods of Ethics will be as various as its ends. The ends, however, are speedily reduced to two, namely, (1) Happiness and (2) Perfection or Excellence. But these ends may be sought for all men universally, or by each individual for himself. There will thus emerge four methods. A fifth is brought to light by the circumstance that the *end* is sometimes dropped into the background, and certain *rules* absolutely prescribed as First Principles that are self-supporting. Such a system is expressed by Independent and Intuitive Morality; it is the view of Butler, and of the Common Sense school generally.

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* *The Methods of Ethics.* By HENRY SIDGWICK, M.A., Lecturer and late Fellow of Trinity College, Cambridge. London: Macmillan & Co. 1874.

Five possible Methods then seem to claim attention; but two of them can be set aside at once—those relating to Perfection. For, as regards *universal* Perfection, there is no claim put in by any school of moralists; and Perfection as applied to the individual is not distinguishable as a system from conformity to absolute rules, or the Intuitive Morality. Consequently there are three alternatives. The system of no-end may be called, once for all, Intuitionism. The two Happiness-systems are both designated by the name "Utilitarianism," but improperly; for the founders and supporters of that view conceived it under the aspect of universal or collective happiness. Still we may formulate a self-regarding Utilitarianism, and contrast it with a benevolent Utilitarianism; the two to be called respectively "Egoistic" and "Universalistic" Hedonism. The names are somewhat hard, but justifiable in the circumstances. Of these three systems, Mr. Sidgwick undertakes to give an exhaustive discussion.

Another preparatory clearance is to state the relationship between Morality and Law or Politics. The upshot is, that morality must be viewed with reference to actual society and actual arrangements, and not with reference to ideals, utopias, or latter-day societies.

It is needful also to understand the incongruous phrase, "Moral Reason." The proper meaning of "reason" is the apprehending of truth in matters of knowledge which alone are true or false. But in regard to reason, there are certain subtle acceptations that enter into conduct, and give a plausibility to the expression—moral or practical reason. In all systems there is assumed an intuitive operation of the practical reason in the determination of ends, as well as of means; doing what is right is conceived and expressed also as doing what is reasonable.

The fourth chapter is on Pleasure and Desire, and expounds the author's view as to the object of Desire, which he contends may be, and often is, something indifferent. I have commented on this view in another place (*The Emotions and the Will,* 3rd edit., p. 436). The conclusion is immaterial for the writer's main purpose.

Of his next chapter, on Free-will, I have the same remark to make. In the work cited (p. 493) I have given my reasons for questioning his libertarian arguments; but they are not such as to affect his ethical doctrines. The mysterious puzzle of Free-will is often supposed to have ethical bearings, according to the side we take. Mr. Sidgwick does not think so. He recognises one aspect of the Will as coming forward in Ethics, especially in connection with good or ill desert, namely, the difference between the morally well-trained and the morally ill-trained will; the one, virtuous with ease; and the other, virtuous, if at all, with difficulty. But this does not involve the dead-lock of Free-will. As a well-reasoned polemic, out of the direct line of the work, upon the perdurable debate on the Will, I commend the chapter to whoever is interested in the theme. It has all the author's good qualities as a reasoner, which I shall have occasion to exemplify as we proceed.

Returning from these half-needful digressions, Mr. Sidgwick has to express more fully the character of the three alternative Ethical Methods. He shows that what seem to be additional methods, as for example, "God's Will" and "Conformity to Nature" resolve themselves into one or other of the three. He meets an objection from another side, to the effect, that *two* methods would express the actual varieties of opinion; namely, one that makes *virtue* the end of human action, and one that makes *pleasure* the end. This would confound what we are especially called upon to keep separate—Egoism and Altruism; pleasure for self, and pleasure for others. Practically, the commonplace man is a mixture of both impulses; it is easier "to move in a sort of diagonal between egoistic and universalistic hedonism, than to be a consistent adherent of either." In fact, the great outcome of the author's exposition, as we shall see, is to show a much closer alliance between Utilitarianism and Intuitionism than between the two forms of Hedonism. To separate these two motives, in spite of their constant entanglement, is what puts the greatest strain upon the ethical theoriser.

Egoism has been carefully defined so as to be rescued from the vagueness attaching to the allied notion Self-love, which admits of interpretations not properly egoistic. It is to be stated as "the sum of pleasures valued according to their pleasantness;" while at a subsequent stage will be considered the means of arriving at this interesting summation.

Intuitionism has next to be cleared of confusing admixtures, a still more serious business. It is a method that "prescribes certain actions to be done without regard to their consequences." Something in the act itself carries us irresistibly to the conclusion that it is a right or a wrong act; we are moved to pay a debt from the self-evident propriety of the action, and not because of the pleasure that we bestow upon our creditor. This naked statement may put on various garbs, which the author indicates, and which are distinct logically and historically. I do not stop to describe them farther than they are suggested by his designations—(1) Perceptional or Instinctive, (2) Dogmatic (with a basis of general rules), (3) Rational or Philosophical (giving some reasons for the rules), to which special reference must be made at a later stage.

Another vague word that afflicts the ethical controversialist is the "Good," given as the ethical end. The common interpretation of this word does not allow an identification with pleasure, and therefore the doctrine that sets it up would not be Hedonism, least of all Egoistic Hedonism. There is rather the notion of contributing to the excellence or perfection of conscious life, which is a form of Intuitionism. The author here introduces a criticism of the Good, or the *summum bonum*, in the ancient systems. It would interest the reader to compare Mr. Grote's exposition of the radical defectiveness of the ancient point of view in giving a self-regarding turn to the ethical end, in which society is really the party concerned (*Ethical Fragments*, Essay III.).

The Second Book is devoted to EGOISM. The notion, purified of vagueness, represents solely the pursuit by each individual of his own greatest happiness, and that by a direct aim. And happiness shall be taken purely as the surplus of pleasurable over painful consciousness. Supposed distinctions in the *quality* of pleasures are to be done away with, by resolution into differences in amount or quantity alone. A man's mode of getting at his greatest happiness may not always be the same; he may simply take what pleasures are within his reach, or he may institute a computation of the pleasures and pains likely to follow a given course of action. Or he may by a deductive argument satisfy himself that virtue is the way to happiness; taking honesty as the best policy. Or he may have a theory that the maintenance of health is the surest road to happiness. But, under every view, he must appeal to his own consciousness as the final criterion of pleasure and pain. So that, in fact, the natural method of Egoistic Hedonism is reflecting on one's pleasures and pains, with comparison and estimate of their respective amounts. To this method the author applies the designation "Empirical Hedonism."

The method thus designated is neither more nor less than the inquiry into the relative values of human pleasures and pains. In connecting it with a theory of moral ends that is at last to be pronounced untenable, the author does not insinuate that it is a mean and unnecessary inquiry. On the contrary, it stands out as equally indispensable for the more worthy conception of ethical right and wrong that is to emerge as the conclusion of the whole inquiry. The first attempt by an ethical philosopher to provide an exhaustive survey and computation of pleasures and pains, was that made by Bentham as a part of his Utilitarian theory, which was not egoistic but universalistic hedonism.

That pleasures and pains should be calculable is an assumption necessary to all rational pursuit, whether self-seeking or philanthropic. If human life is not a game of blind man's buff, we ought to be aware of the difference between one pleasure and another, if there be any difference. If the pleasures purchasable by £300 a year do not exceed those attainable by half the sum, while the pains of earning the larger sum are undoubtedly greater, every sane man would stop at the smaller figure. So, it would be unnecessary, in showing good-will to a relation or a friend, to bestow what is needless for happiness.

Pleasures and pains obviously differ in degree; and we are conscious of the difference. There is, in both, a scale of degree, beginning at a "hedonistic zero," and rising to the maximum of known pleasure or pain. The fundamental assumption of Hedonism is that pleasures are to be preferred and pains to be shunned, in proportion to their degree or amount. No other distinction is to be considered under this system. Quality, elevation, refinement must either condescend to be computed on the score of intensity, or be rejected as belonging to another scheme of life, and not to hedonism.

But now is the calculation practicable or possible? We must face all the difficulties, for hedonism, whether egoistic or universalistic, stands or falls upon it. Mr. Sidgwick does not blink these difficulties, nor indeed any other difficulties.

It may be all very well to compare two recent pleasures or pains, as in testing wines or perfumes, or the tone of an instrument; but when the experiences are past, we must trust our memory, and this is not very faithful as regards pleasures and pains. It is from recollections of the past that we must conceive the future, and those recollections have often to be shaped by the constructive imagination into new forms and groupings — a very uncertain process. Then, for many situations that have to be hedonistically valued, we have no experience of our own, and must depend upon other persons; and these other persons, besides being unfaithful in representing their experience, may not be constituted as we are, and therefore no fair criterion of what we shall feel when we come into the situation supposed.

The difficulties thus appear to thicken upon us at every step. Even at the first stage, the estimation of our own experienced pleasures, Mr. Sidgwick seems to think that when they are different in kind, as in comparing the sensual, the æsthetic, and the intellectual, our faculty of discrimination and valuation is non-plussed. So when we compare an unmixed pleasure with one that has an ingredient of pain, he thinks that we are easily thrown out of our reckoning. This I take to be true of a careless observer; but if the comparison were conducted in earnest, the supposed difficulties might, I think, be overcome. But then, continues Mr. Sidgwick, we are liable to the working of bias in various ways. Thus, in looking back upon our hardships, evils and anxieties, we are apt to underrate them. The remedy here must be the same as for any other known bias; we should learn to allow for it. Then, again, in the pressure of some actual misery we crave for its opposite, without taking account of attendant evils. When overworked, we crave for inaction, and forget the *ennui* of idleness.

The trust in other people's experiences is obviously dangerous, until we can allow for differences of character. But a worse uncertainty remains. Our own character may be changing, and passing into a phase that we cannot now estimate. In point of fact, however, this is the previous difficulty; for we must interrogate persons that have come into the same phase, and be guided by them. The most subtle form of the uncertainty is in trying to compute what will be the result of a particular discipline or education, whether to heighten a pleasure-giving taste, or to harden ourselves against a pain.

These are grave obstacles in our hedonistic path. There are others of a more factitious sort, as the supposed dulling tendency of self-consciousness; any cognitive effort being a damper to the pleasurable flame. Then there is the paradox of Desire—that in order to succeed in a thing you should set your aim at some, different thing. For my own part, I do not set much store by these difficulties, and Mr. Sidgwick has no wish to exaggerate them.

It is at this point of Mr. Sidgwick's exposition that I first open critical fire. I thoroughly concur with him as to the necessity of a hedonistic calculation, and I admit all the difficulties that he sets forth. I think, however, that an additional chapter would have been well bestowed upon the ways and means of meeting those difficulties, or else of lightening their pressure. The motive that urges me in this suggestion is not mere asking-for-more. The author has put into his volume a sufficient amount of good matter to make it one of the best volumes of the present generation. It is rather because Utilitarian Ethics does not get justice, if identified with the problem of calculating the vast total of human pleasures and pains of every sort and degree. An opponent can maintain with reason that such a task is impossible; and a system that supposes it, is liable to be thrown overboard as a chimerical idea.

I can imagine various ways of so far mitigating the difficulties as to bring the operation within the limits of possibility. When so much ingenuity has been spent in calculating the lunar and planetary perturbations, something might be done to simplify the problem of the perturbations of the human breast. Without losing sight of the benefits of physical science, we may say that a good hedonistic calculation has more to do with our welfare than the Transit of Venus. A "Science Commission" might well be issued in consideration of the backwardness of subjective research, and the serious consequences flowing therefrom. When we have a hedonistic calculus, with its senior wranglers, we shall begin to know whether society admits of being profitably reconstructed.

To exemplify the possible simplifications of the hedonistic problem, I will mention first the device of studying separately the side of *pain*. The removal of pains is in many respects a distinct department, and could be rendered remarkably definite. Not only does the protection from pain grow out of special appliances, but it occupies the largest portion of our endeavours and resources. If we could only keep free from pains, if our burdens and obligations were within our strength, the system would respond to pleasure without the necessity for numerous stimulants. But, as regards Ethics, the greatest consideration remains; protection from pain is the chief thing sought by moral restraints and enactments. Morality does not cater for men's pleasures, it only secures them from molestation in pursuing pleasures for themselves.

Another device of simplification would be a felicitous concentration of the main sources of pleasure, the result of a good classification of our sensibilities. Various modes might be tried; but it is clear that the *social* feelings would be one leading group.

I can suppose various other considerations that would come in to facilitate the labours of the hedonist, but what I lay especial stress upon, is the *limitation of the province of Ethics*. For although pretexts may be made for bringing into the

Ethical problem every possible pleasure and pain, we may, I think, satisfy ourselves that *security* and not happiness is the chief end of the rules of Ethics; *being* rather than well-being. I have already maintained this view in various places, and I will not argue it farther until I am met by some arguments on the other side.

Mr. Sidgwick, after setting forth against himself the almost insuperable vastness of the hedonistic computation, turns round and asks the pertinent question—whether Common Sense has found an easy way, a royal road. He finds that the moral judgments of Common Sense are indeed perplexing and inconsistent, but are still worthy of being attended to, in the absence of anything better. The tendency is to exaggerate the evils attending our worldly advantages, such as wealth, power, fame; notwithstanding that there is something to be said for that view. I believe, however, that the best corrective to this excess, would be to study the *pains* removed by these advantages; to look at the exemptions of the rich man, in comparison with the poor.

The succeeding chapter is one of vital interest. It faces the question, so often shirked, Does Duty coincide with Happiness? The author allows no ambiguity, evasion, or subterfuge to stand between him and the unwelcome conclusion, that Duty does *not* coincide with Happiness. He tries the point, first upon the Legal Sanctions of Morality, and shows that they are not always sufficient to render immoral conduct also imprudent. Next the Social Sanctions, blame and praise, fail in nearly the same ways, and also in ways of their own, as when society is divided on the guilt of a particular line of action. Farther, whereas the reciprocity of virtuous conduct goes a considerable length in re-imbursing the virtuous agent, yet the way that this reciprocity works is to stint the virtuous motives by comparing them to profitable investments. Turning to the satisfaction of a good conscience and the pains of remorse, the author is equally constrained to pronounce against the unqualified coincidence of Happiness and Duty.

This of course disposes of Egoism, as a basis of Morals; it is a sufficient refutation of any Selfish System. Before concluding, however, the author examines another attempt to fix the route to the greatest happiness, namely, the adjustment of our impulses and faculties to our surroundings, physical and social—a view expounded by Mr. Herbert Spencer. No doubt a perfect correspondence between all our wishes or impulses and the society that we live amongst, would make for our greatest happiness, as well as bring about a coincidence between happiness and duty. But after a full examination, which I cannot here trace, Mr. Sidgwick is obliged to conclude that the method is, after all, simple empiricism.

The Third Book, occupying nearly half the volume, is the author's greatest achievement; it is the examination of INTUITIONISM. Many writers have pointed out that the morality of Common Sense, in other words, the moral sentiment, is, in the main, Utility. But although numerous telling examples have been cited in support of this view, there was still wanting an exhaustive demonstration; and this is now provided. Both the general fact and the exceptions are set forth in satisfying detail.

I shall indicate briefly the author's mode of proceeding. As usual, he clears the way by settling the meanings of terms, a perpetual necessity in Ethics. The fundamental assumption of Intuitionism is that we see at once what actions are in themselves right and reasonable. But it is said by some that *dispositions* or *motives*, and not actions, are what we judge to be right or wrong. This does not survive the author's scrutiny. Moreover, rightness is not absolute or objective, but dependent or subjective; it is what the agent *believes* to be right. Any bias that he may have in his own favour is cured by the generalising test—Would this be right for any other person placed in the same circumstances? This, the formal test of Kant, Mr. Sidgwick remarks, is like the Formal part of Logic; it must be complied with, but it does not give a complete criterion of Duty. He farther observes that the Existence of moral intuitions is not to be confounded with their Origin, nor with their Validity. Whether they are instincts or growths, is nothing to the purpose; although he thinks that the supposition of growth is the most favourable to their value, as the wisdom of the man ought to be greater than the wisdom of the infant.

The first important question to be settled is whether the intuitive moral decisions are universal or individual. Do we judge in each case, with or without reference to a rule or general principle? To this the answer must be that, in the decisions of the intuitive moral faculty, reference to general maxims is usual and admitted. In fact, there exists, in a formulated shape, a body of current maxims imposed by the community on each individual; which body of maxims may be regarded as the Positive Morality or the Moral Code of the community. These maxims are what have to be scrutinised, in the attempt to discover the real ethical end, the foundation of moral duty. On looking into those current notions, the first thing to strike us is their want of clearness. Indeed under them, opposite judgments may be formed upon one and the same case; a proof that they must be indefinite and elastic to a degree.

After some remarks on the distinction between Duty and Virtue, Mr. Sidgwick commences his detailed examination of the Common Sense Moral Code. Without laying great stress upon any one order in classing the duties, he opens with what are called Intellectual Virtues. Of old, Wisdom, Practical Wisdom, had a front rank among the virtues; "but its precise relation to the other virtues was a continual source of perplexity, so that even the thought of Aristotle loses it usual analytic clearness on this subject." As an excellence of the intellect, Wisdom would mean the right selection of means to ends; but it may also mean the proper selection of ends. The wise man that is an object of moral praise is he that selects good or moral ends. It also includes a right condition of the Will, for we must not merely choose well, but must carry our choice into effect. The consideration of this aggregate mental excellence does not, however, aid us in the present inquiry.

The virtues that will bring Intuitionism to the proof are—Benevolence, Justice, Truth; and the author's examination of all the three is most elaborate, and goes far to supersede every previous analysis.

Take first Benevolence. As with other ethical terms, the word has a clustered meaning. As commonly stated, it combines the emotion of love with active services to our fellow-creatures. The emotion or affection is not under the control of the will, except as to its being cultivated; so that the part that chiefly belongs to duty is doing service to others, or promoting the happiness of others. But now, in seeking for a more definite guidance, we ask whether it is the *happiness* or the *virtue* of our neighbour that we are chiefly to promote. Farther, we ask *who* are the most proper recipients of our favour; for example, whether human beings alone, or the lower animals as well. This point Common Sense does not precisely determine. More important is it to determine how our benevolence ought to be distributed among our fellow-men. In the Utilitarian view, we are to seek the happiness of men generally, but are to apply our strength where it will operate to most advantage, namely, by promoting the happiness of such as come within our sphere. Common Sense recognises certain individuals as more nearly related to us, and enjoins that our kindness shall be regulated by the proximity of the relationship. But now starts up a perplexity from considering that many of those kindnesses are in requital for benefits received, thereby converting Benevolence into

Justice. So that to get at an open career for benevolence, we must find a region where the services are not of debt. Then comes the case of Affection, and the question whether it is duty and virtue simply to follow out affectionate promptings; or, in order to be virtuous, must we work where we have no affection, like Howard for criminals? Other questions are put equally puzzling to Common Sense Ethics; and the author is driven to confess that he cannot, by reflecting on common sense, elicit clear and definite principles for determining the right distribution of kindness. He goes exhaustively through the duties: Duties of Involuntary Relationships—Kindred, Neighbourhood, Citizenship; Duties of Voluntary Relations, as Friendship; Duties springing from services received—Gratitude; Duties to special need—Pity. The conclusion is the same for all: "While we find a number of broad and more or less indefinite rules laid down by Common Sense in this department of duty, it is difficult or impossible to state even the most certain of these with such clearness and precision as would enable us to determine exactly the extent of duty in any case."

The author's handling of Justice is in like manner thorough and masterly. The results he sums up thus:—

> "The prominent element in Justice as ordinarily conceived is a kind of Equality; that is, Impartiality in the observance or enforcement of certain general rules allotting good or evil to individuals. But when we have clearly distinguished this element, we see that the definition of the virtue required for practical guidance is left obviously incomplete. Inquiring further for the right general principles of distribution, we find that our common notion of Justice includes—besides the principle of Reparation for injury—two quite distinct and divergent elements. The one, which we may call Conservative Justice, is realised (1) in the observance of Law and Contracts and definite understandings, and in the enforcement of such penalties for the violations of these as have been properly announced and generally accepted; and (2) in the fulfilment of natural and normal expectations. This latter obligation, however, is of a somewhat indefinite kind. But the other element, which we have called Ideal Justice, is still more difficult to define; for there seems to be two quite distinct conceptions of it, embodied respectively in what we have called the Individualistic and the Socialistic Ideals of a political community. The first of these takes the realisation of Freedom as the ultimate end and standard of right social relations; but on examining it closer, we find that the notion of Freedom will not give a practicable basis for social construction without certain arbitrary definitions and limitations: and even if we admit these, still a society in which Freedom is realised, as far as is feasible, does not completely

suit our sense of Justice. *Primâ facie*, this is more satisfied by the Socialistic Ideal of Distribution, founded on the principle of requiting Desert; but when we try to make this principle precise, we find ourselves again involved in grave difficulties: and similar perplexities beset the development of Criminal Justice on the same principle.

"Ideal Justice, therefore, is very difficult to delineate, even in outline; for if we cannot work out satisfactorily either of these two conceptions, it is still harder to make a satisfactory combination of the two; and yet difficult altogether to discard either. And we are farther perplexed when we try to reconcile either with Conservative Justice. For both in public and in private affairs it is often questioned how far the natural expectations of comparatively undeserving persons ought to interfere with Distribution according to Desert; and, again, how far such expectations, if not founded on definite contract, ought to hamper the Freedom of others. To such questions our attempt to define the common-sense notion of Justice does not seem to furnish an answer."

In a chapter entitled "Laws and Promises," Mr. Sidgwick dwells on the duties of obedience to authority, which common sense requires, but does not free from uncertainties. There is the conflict between usurped and rightful authority, which is solved only by a reference to Utility. The subject of Good Faith or Fidelity to Promises gives a fine opportunity of showing how thoroughly at fault is the monitor within the breast, if unassisted by the utilitarian monitor. The author unfolds, with remorseless completeness, the critical situations that baffle the inward sense, and is of course obliged to sum up once more against its pretensions.

The duty of Truth seems at first sight the clearest case of all for the Intuitionist. But only at first sight. Common Sense has allowed a number of grave exceptions to the absolute claims of Truth, and is obliged to go to Utility to hold the license in check.

The restraining of Malevolent Impulses is often laid down as an absolute duty, but this is not consistently adhered to; for we must punish and retaliate injuries in the interests of society; and the consideration of those interests, that is, Utility, must be our guiding star.

The Self-regarding Virtues are next considered—Temperance and Purity. As strictly self-regarding, Temperance is regulated by the calculations of Egoistic Hedonism. Common Sense, however, interferes so far as to demand a certain abstemious restraint, but when we ask where the line of indulgence is to be drawn, the answer fluctuates; some would put it at the maintenance of health, others would allow a little indulgence for society's sake. So in Chastity and Purity: the gratifying of the sexual appetite, even in the marriage relation, has had strict limits imposed on it by the ascetic moralists, as, for example, the procreating of children. But this is mostly theory.

After touching on the common sense views of Courage and Humility, the author is prepared for a summary of the whole case. He lays down, with ominous rigour, the conditions that he expects in an Ethical first principle—the terms precise, each proposition really self-evident, the different propositions mutually consistent, universal acceptance. Reviewing all the duties above detailed, he inquires whether the maxims in each case comply with these four conditions. The flaws that come to view are such as—reasoning in a circle, incurable indefiniteness, aversion to explicitness. At the same time he guards himself against supposing that he has subjected all the moral duties to an utterly destructive analysis.

> "The notions of Benevolence, Justice, Good Faith, Veracity, Purity, &c., are not emptied of significance for us, because we have found it impossible to define them with precision. The main part of the conduct prescribed under each notion is sufficiently clear; and the general rule prescribing it does not lose its force, because there is in each case a margin of conduct involved in obscurity and perplexity, or because the rule does not, on examination, appear to be absolute and independent. In short, the Morality of Common Sense remains perfectly adequate to give practical guidance to common people in common circumstances; but the attempt to elevate it into a system of scientific Ethics brings its inevitable imperfections into prominence without helping to remove them."

Next is a chapter on the moral judgments we pass on Motives; as when we assign to some motives a higher moral rank than others, and declare that in presence of a superior an inferior must give way. He treats of the difficulties attending this view, in an argument with Mr. Martineau, and concludes that no method of deciding moral questions can be founded on it.

He now passes to the inquiry whether there be any philosophic handling of Intuitionism such as to elevate it to the position of a science. He goes back to the historical systems, as embodied in the moral philosophy of ancient and modern times. Stating in words the two cardinal virtues—Wisdom and Temperance—he finds them to be mere tautology. And even in approaching the great names of Plato and Aristotle, with all their valuable thought, he declares their method stricken with the same incurable defect. He exemplifies this in Aristotle's definition of the Good. Stoicism also is circular in its reasoning. The Stoical formula (Life according to Nature) is adopted by Butler, and in his hands it still bends into the old circle: "it is reasonable to live according to Nature, and it is natural to live according to Reason."

From the circular vice, he excepts only Clarke and Kant. Clarke has two principles—Equity and Love or Benevolence, and neither of them is tautological. The rule of Equity (the Golden Rule) is equivalent to the broad formula—"what is right for me is right for all in the same circumstances." This Mr. Sidgwick unhesitatingly pronounces to be an Ethical Axiom, a self-evident proposition. It is definite, and it is not an identical but a real proposition. The second rule, the rule of Benevolence, is "to promote the welfare and happiness of all men." This too is self-evident; it cannot be made to repose on any more fundamental principle. It is also perfectly intelligible, allowing for the latitude that may be given in applying it. Kant, in a different way, has arrived at the same two rules. He then refers in this connection to J. S. Mill's proof of the principle of Utility, to which he objects that the principle of Universal Benevolence (which is the Utilitarian theory) is subjected to a hedonistic interpretation.

The closing chapter of the Book on Intuitionism resumes the inquiry—What is the Good, the *Summum Bonum?* Happiness, no doubt, in great part, but not wholly, in the judgment of Common Sense. Neither is it exclusively Virtue. Goodness or Excellence of Conscious Life must be allowed to be "good;" but some farther elucidation is needful. Now Common Sense, while peculiarly averse to Egoistic Hedonism, is not dissatisfied with Universalistic Hedonism as a sufficing end. Universal Happiness—desirable conscious life for the innumerable multitude of living beings, present and to come—seems an End that satisfies our imagination by its vastness, and sustains our resolution by its comparative permanence and security, In short, as the conclusion of the whole matter, the Intuitional method yields as its final result the doctrine of pure Universalistic Hedonism.

We are now at the Fourth Book, UTILITARIANISM. The need of clearing up the meaning of this much abused notion is urgent. The great point, however, is to detach it utterly from a selfish system, an Egoistic Hedonism. As to Bentham's wording of the principle, adverse criticism is too easy. For one person that has mastered his almost unexceptionable exposition, a million are acquainted with his exceptionable motto.

But now we come to the graver question—What is the proof of Utilitarianism? Egoistic Hedonism may dispense with proof; each agent may be allowed to postulate his own happiness as an end; but it is different with Universalistic Hedonism. No doubt Common Sense accepts it, and we may, if we choose, rest satisfied with that acceptance. Common Sense or Intuitionism is a crude or impure Utilitarianism; if the crude form is to be admitted, how much more the purified article. The author once more reviews the chief virtues, showing that each one of them is in its basis utilitarian, and has its boundaries set by utilitarian considerations. In fact, without considerations of utility, the common sense virtues would be unworkable. Take Benevolence. This, rationalised, would be an exact description, a summary, of Utilitarianism. In an interesting series of examples, the author proves the point at length. An equally strong case is made out under Justice, and the Obedience to Law. The missing links of Intuitionism are provided by Utility. So with Truth-speaking and its exceptions. Again the discrepancies of the moral codes of nations can often be accounted for by referring to special utilities; likewise the unequal stringency of the same enactments towards different individuals. So much for the proof of Utility by Common Sense.

The Utilitarian System being now enthroned (subject to a final question still to be put), how is it to be worked out? In other words, how are we to proceed in authenticating, or else in amending, our present morality? For morality has changed in the past and may change in the future. The answer is—nothing for it but Empirical Hedonism. With all its defects, this is the only method left us; the substitutes have been weighed and found wanting. Mr. Sidgwick puts himself into the situation of an ethical reformer, under Utility, and plays the part of a conservative liberal. The existing Common Sense (with its utilitarian handling) he would have to be provisionally received, but not to be regarded as a faithful transcript of utility, nor as a final adjustment of our duties. He points out the many disturbing causes that have been at work to render imperfect the morality handed down to us from bygone times. If we now shrink from the hedonistic calculation, how we can respect the solutions given by men less informed and more fool-hardy? Their sympathies were limited; their intelligence was also limited. False religions gave a wrong bias: founders of religions did not even refrain from introducing their own individual likings and dislikings into the moral code; if Mohammed had been fond of wine, and indifferent to women, the morality of the human race (in the East) might have been very different. It is thus apparent that Utilitarianism has much to revise and consider in regard to our received morality; that is, supposing anything can be made of the calculus of pleasures and pains. To dispense with the morality of instinct and tradition would be premature and ill-advised; the present rudimentary condition of sociology is alone a sufficient reason.

Mr. Sidgwick farther, in the true conservative spirit, considers all the precautions to be observed by an ethical innovator. Indeed, no one will charge him with any serious designs upon our present moral code. He sets an example of the careful balancing of the two sides of every question, which is often neglected by common sense, but cannot be neglected by the Utilitarian thinker.

The concluding chapter is the gravest of the whole book. It has the merit of at least putting explicitly the hardest question in Ethics. "It has yet to be shown why a man should be a consistent Utilitarian." As the author has already refused (on good grounds) to admit that virtue and happiness coincide in the long run, he has burdened himself with the task of showing an adequate reason for preferring virtue at all hazards. The effect of virtue (that is, of social restraints and good conduct of every kind) is greatly to multiply the general stock of human happiness; but it does not necessarily repay every contributor in exact proportion to his contributions. In fact, a number of the contributors get little or nothing; many dutiful lives are both short and miserable. This effect, however, is deplored by society itself; the constant aim is by improved arrangements to reduce the number of self-sacrificing members.

Mr. Sidgwick makes ample allowance for the reciprocities of society, together with the pleasures of sympathy and compassion, but is yet inexorable in refusing to admit a perfect and universal coincidence between Utilitarian duty and self-interest. What then is to be done? Try the Theological solution. Alas! this too crumbles under his handling. Is there then no solution; no motive adequate to perform the sacrificing duties? The author mournfully says *none;* and yet thinks that something must be done.

> "We have found that the antithesis between Intuitionism and Utilitarianism must be entirely discarded: since the first Principle of Utilitarianism has appeared as the most certain and comprehensive of Intuitions, and most of the others naturally range themselves in subordination to it, and even seem to be most thoroughly understood when considered as partial applications of it unconsciously and imperfectly made. Nor has it appeared very difficult to marshal our common judgments both of Goodness and of Rightness into a system under this principle without impairing our confidence in the

substantial veracity of Common Sense: and all particular moral sentiments and special sympathies fall easily into their places as auxiliaries to the two supreme coincident impulses, Universal Benevolence and the desire to do what is Right as such. In such a reconciliation, though much practical embarrassment may be caused in details by the conflict that will partially continue between what we may now call Instinctive and Calculative Morality, all theoretical perplexity as to the general principles of determining Social Duty will have been entirely—or almost entirely—removed. But the fundamental opposition between the principle of Rational Egoism and that on which such a system of duty is constructed, only comes out more sharp and clear after the reconciliation between the other methods. The old immoral paradox, 'that my performance of Social Duty is good not for me but for others,' cannot be completely refuted by empirical arguments; nay, the more we study these arguments the more we are forced to admit, that if we have these alone to rely on, there must be some cases in which the paradox is true. And yet we cannot but admit with Butler, that it is ultimately reasonable to seek one's own happiness. Hence the whole system of our beliefs as to the intrinsic reasonableness of conduct must fall, without a hypothesis unverifiable by experience reconciling the Individual with the Universal Reason, without a belief in some form or other, that the moral order which we see imperfectly realised in this actual world is yet actually perfect. If we reject this belief, we may perhaps still find in the non-moral universe an adequate object for the Speculative Reason, capable of being in some sense ultimately understood. But the Cosmos of Duty is thus really reduced to a Chaos; and the prolonged effort of the human intellect to frame a perfect ideal of rational conduct is seen to have been foredoomed to inevitable failure."

A sad ending to a great work! I cannot but think, however, that too much is demanded. Mr. Sidgwick appears to suppose that individual and universal happiness must both repose upon one foundation; or rather that self-regard must carry with it the regard to others. Now it seems to me that the sooner he gives up this expectation the better. To seek our own interest is one thing; to renounce our own interest for another man's is quite a different thing; the second cannot by any conceivable device be forced under the first. That "I am to be miserable" cannot be an inference from "I am to be happy." There must clearly be *two* things postulated as the foundations of human duty, each for itself and on its own merits. It is reasonable for each one to seek their own happiness; it is right, reasonable, for each to give up, if need be, their own happiness for the sake of the happiness of some other persons. The first motion being put and carried *nem. con.*, the second becomes an independent and substantive motion, and must be put on its own distinct grounds of acceptance. In all human societies hitherto, this motion has been also carried with more or less unanimity and with more or less of qualification; and being carried, men have to a certain extent acted up to it.

On Mr. Sidgwick's book as a whole, I would venture the following remarks. On its own plan, the completeness of the handling is almost beyond praise; I cannot assign any important omission, while often struck with the opposite fact. Equally, if not more, meritorious is the logical rigour of the reasonings. Any one might fearlessly offer a reward for every fallacy, under the widest classification of the fallacies. Whatever the author touches, he clears, and not seldom adorns; while ruined sophisms strew his track.

If I must be critical, notwithstanding the extent of my approval and concurrence, I would indicate one other point (besides the Hedonistic Calculus) where the ideas (although all stated) might have been expanded with advantage to the main theme. I think that Mr. Sidgwick might have been fuller upon the influences apart from Utility, well or ill apprehended, that have determined the traditional morality. On the maxim that, before pronouncing a person to be wrong, it is desirable to know how he came to be wrong, any proposal to alter a moral rule should be accompanied with an account of the mode of its origination.

My concluding remark is more general. The author amply recognises the close and inseparable connection of Ethics and Sociology. Yet I doubt whether he has done everything that this connection would impose upon him. My conception of morality is that it should never be separated from the consideration of the social organism. In the matter of Duty, Society is the alpha and the omega. What I mean will receive a contrasting illustration by referring to Bentham's motto, and to Mr. Sidgwick's wording of Universalistic Hedonism. "The greatest happiness of the greatest number," the aim "at universal happiness," do not yield Morality as I understand it. Under these requirements, I fail to see how large fortunes can be otherwise than condemned. I, for my own part, would not oppose one man individually to any number of men individually; the opposition is—one man to the social body. It is to society, *as society*, that we are to offer up our individual happiness, when called upon by an emergency. The restraints that we all submit to are supposed to be needful for the effectual working of the social machinery.

Objection could easily be taken to the vagueness of this statement, and it wants many explanations that I cannot here offer. But, even as stated, I believe it to be a position of advantage for attacking the difficult questions. It simplifies, by narrowing, the hedonistic calculation; it shows where the stress of obligation should lie—the preservation of the social system. It ranks the social ends in the scale of urgency, and commands our assent as soon as proposed. It declines the pursuit of Universal Happiness, and contents itself with Universal Security.

I apprehend that to attempt moral reforms upon the hedonistic calculus in all its unqualified extent, would break down from the handle that it gives to the opposition; in the mazes of such a problem, the balancing operation could be rendered hopeless. The effective point of attack is against over-government, that is, needless restraints. Here the burden of proof lies upon those in power. Authority may be called upon at all times to justify itself. Is it right to exclude women from the professions?—might be discussed for ever upon the *pros* and *cons* of Universal Happiness. If it is to be settled, in any reasonable time, this must be by insisting on a clear and overwhelming case for depriving one sex of the opportunities of worldly advancement possessed by the other.

One other point, and I have done. In that final pinch—the reconciling of the good of others with the good of self—the social wording of the formula, without resolving the paradox, presents it on the side that most easily gains acceptance. If I am bidden to give up my happiness to another man, I may not unfairly answer that I am surely free to keep what is my own. But if I am reminded of the claims of the society that I was born into, and spend my life in, I feel that a constraining voice has spoken to me. Such is our habituation to the social relationships, that we are disposed to fall in with the prescribed arrangements without question. "I and my king" are one, when the social impetus is awake. There are occasions when the other impetus wakens up, and perhaps carries the day; but we are under a divided dominion; the best of us are always faithful to Society; the worst cannot entirely throw off allegiance. "Am I not a man and *a brother?*" is the full expression of *Homo sum.*

A. BAIN.

IV.—MR. SIDGWICK ON INTUITIONALISM.

MR. SIDGWICK'S work, though named *The Methods of Ethics*, is not on the methods of investigation appropriate to ethical inquiry. It aims at an impartial statement of rival theories, and a summing-up of the evidence, for and against, in a judicial spirit. To attempt the task "quite neutrally" is well in intention, but peculiarly difficult in execution. It is rather a hopeless business for one who does not believe a theory, but sets himself to criticise and reject it, to volunteer the service of "throwing it into scientific form." Mr. J. S. Mill wonderfully succeeded in brief statements of single positions held by opponents. Mr. Sidgwick has, I humbly think, largely failed in the attempt to give a clear and fair representation of Intuitionalism. My object in this paper is to offer a protest against the representation, and, if I can attain my end, secure a clearer understanding of the intuitional scheme of thought, especially among its opponents.

In order to clear the way, let me begin with a concise statement of the Intuitional theory of moral distinctions. Self-evident laws of conduct afford the only rational basis for distinguishing the moral qualities of actions, and self-evident moral laws are intuitively known by men, that is, directly recognised by the Reason. Or, to throw it into another form: Moral laws are applied by all men, and are recognised as essentially true and authoritative, though their validity has not been determined by personal induction, nor established by experience of past ages, nor by the *consensus* of opinion among the more intelligent and civilised nations,—but is self-evident to the reason.

In turning to Mr. Sidgwick's representations of the theory, I confine myself to the introductory chapter on "Intuitionism,"—the first chapter in the Third Book, consisting of 15 pages.

I. Mr. Sidgwick fails to give an adequate statement of "the fundamental assumption" of Intuitionalism. He says (p. 178) it is "that we have the power of seeing clearly to some extent what actions are right and reasonable apart from their consequences (except such consequences as are included in the notions of the acts)." To take the last part of this statement first, it accurately shuts off the utilitarian view, that the rightness of actions is an inference from their anticipated consequences. Intuitionalists hold that a man who speaks the truth, is certain that he does a right thing, without reckoning the consequences; and that a man who is paying his debts is in that doing a right thing irrespective of consequences. But Mr. Sidgwick is unfortunate in his use of a singularly obscure form of expression—"the power of seeing clearly to some extent." I do not suppose that a single representative of Intuitionalism could be found to accept the responsibility of such a phrase. "To some extent" is so indefinite as altogether to neutralise the reference to "seeing clearly." I do not deny that some ambiguity is to be found in the representations of intuitionalists themselves, and therefore I do not throw the entire blame of ambiguity on Mr. Sidgwick. Intuitionalism, like Utilitarianism, has gone through various stages. This imposes a task of some nicety upon any one who would state in a single sentence the fundamental assumption of either scheme of doctrine. Whoever would describe and criticise Intuitionalism must gather up the best results of most recent thought. He must not take the "earliest" and crudest expressions of the theory, as "more trustworthy than the latest,"—if I may borrow a shaft from the author's armoury, when he awkwardly betrays another misunderstanding. The critic must summarise the theory in its most generally accepted form. This is what Mr. Sidgwick here fails to do. Intuitionalists point to what they regard as a fact; and they offer a theory of the fact. The *fact* is, that men do with clearness and accuracy distinguish certain classes of actions as morally right, and other classes of them as wrong. This is their fundamental postulate. Their *theory* is, that men recognise as self-evident a moral law, by the application of which the one set of actions is approved and the other set condemned. Opponents are of course free to criticise the theory, but this is the thing to be criticised; and its bearing upon the alleged fact is plain.

Meanwhile, let me confine attention to the alleged fact, which is "the fundamental assumption." Granting all that can be said as to the diversity, and conflict, and error apparent in moral judgments, the fact is this, that men are competent to distinguish with clearness and certainty between right actions and wrong, and are practically agreed in doing so. Where and whence arises the acknowledged confusion which Mr. Sidgwick obviously had in view when he penned this phrase "to some extent?" Dealing here simply with matters of fact, it is beyond dispute that men are often in perplexity as to moral questions. Where does this perplexity appear? Mr. Sidgwick points to one recognised phase of obscurity, when he says that we often have our judgments "warped and perverted by strong desire." This is a familiar fact, which is freely admitted by intuitionalists. But it is an additional fact, and one which does not throw doubt over that to which they point as the central fact in the case. Intuitionalists do not affirm that men never allow their desires to pervert their moral judgments. On the contrary they grant that such perversion is frequent. But this, as a distinct fact, seems to them to carry some confirmation of the central fact. For if we say that our judgments are often "warped and perverted by strong desire," we imply that we are capable of recognising that our judgments have in such cases been perverted, and this is confirmatory of the fundamental assumption that men do clearly distinguish certain classes of actions as right, and others as wrong. But there is another fact mentioned. Men are often in doubt as to matters of *duty*. This is something different from the classification of actions according to their moral qualities, but it is closely connected. Men are often in perplexity as to whether they ought to act or not; and, on the supposition of acting, whether in this way or in that. But this also is a fact admitted by intuitionalists. While maintaining that men clearly distinguish actions as right and wrong, and therefore can readily enough recognise what things are not to be done, intuitionalists do not affirm that this knowledge is all that is needful to settle questions of duty. But they hold, as a preliminary, that there is such acquaintance with moral distinctions as makes it possible for each man with care and reflection to determine what his duty is in the position in which he happens to be placed. There is still another fact requiring to be named here. Men often do wrong and attempt to *excuse* it. This also is a fact admitted by intuitionalists, but it is altogether distinct from that to which they point in their fundamental assumption. For it is to be remarked that men who excuse wrong-doing, do not exactly profess that the wrong they have done is right. Their form of excuse implies the contrary. They excuse themselves, either on the plea that circumstances over-mastered them, or on that plea put forward by Socrates in behalf of all such, that appearances deceived them. But to plead that they were overcome, or to grant that they were deceived, is to grant the fundamental assumption that they are capable of distinguishing the right from the wrong. These three facts, that moral judgments may be warped by desire,—that men are often in doubt as to what they ought to do in the circumstances in which they are placed,—and that men often excuse themselves after wrong-doing,—are facts which must be accounted for under any ethical theory adopted. But they do not interfere with the special fact to which intuitionalists point. The alleged fact is that, in the midst of all the existing confusion of thought, and inconsistency of conduct, men clearly and accurately discriminate definite classes of actions as right, and others as wrong. This, if it be a fact, is all the more striking and important in view of the acknowledged confusion of thought on moral questions. There is unanimity among men in resenting as wrong their being deceived, or deprived of their property, or being cruelly treated, or refused what has been promised them. There is unanimity among men in approving as right their experiencing kindness from others, their receiving payment of sums due to them, and the fulfilment of promises made to them. I refer to the view which men take of the actions of others, not because I favour Adam Smith's way of dealing with knowledge of moral distinctions, but because I seek the stand-point from which the fact signalised by intuitionalists is best seen. So much for the fact. Now for the theory offered in explanation of it,—the higher fact accounting for it,—that we have a direct intuition of moral truth, and this truth men with more or less accuracy apply in their moral judgments. Intuitive knowledge certainly does not protect men from the influence of their own inclinations and desires, but it makes accurate judgment possible. I pass now to consider the representation given of Intuition itself.

II. Mr. Sidgwick does not afford his readers any clear indication of the nature of Intuition, but applies the term indiscriminately to a variety of mental exercises.

Intuition is a direct beholding of an object or a truth. It is immediate knowledge of the thing itself. It stands in contrast with knowledge of one thing through means of another, as in reasoning; and also in contrast with admission of real existence without personal observation of the thing, as in belief. It is direct vision. It may be an exercise of either bodily vision, or of the mind alone. Hence we speak of the lower and higher intuitions, the one class being intuitions of the senses—observations of external realities, the other, intuitions of the reason. It is with intuitions of the latter class we have here to deal. Intuition then is Perception in contrast with comparison or judgment, though the term has been applied to the notion obtained by simple comparison. It is a single and direct act, in contrast with a mental process. It is, as Mr. Sidgwick says, the power of "seeing clearly," and bodily vision may afford analogy by which to interpret statements concerning the higher intuitions.

Mr. Sidgwick does not restrict his use of the term to a definitely marked exercise of mind. He speaks of "Ethical *beliefs* that lay claim to intuitive certainty" (p. 187); he says that we "*judge* intuitively of the rightness and wrongness of actions" (p. 187); and speaks of "intuitive *judgments* which form the premisses of moral reasoning" (p. 189). Any one turning to Hamilton's classification of the terms employed to describe intuitions (*Metaph.* Lect. 38), will find both belief and judgment in the list. Intuitions have been named "primitive beliefs," and "primitive judgments." Mr. Sidgwick can, therefore, find authority for the wide use of the term which he adopts. But exact criticism is incompatible with such indiscriminating use of "intuition." Let us agree about the thing, and then we can understand what we are seeking for among the facts of consciousness. The unfortunate consequences of the want of an exact definition of intuition are obvious all through the pages to which I am turning attention. For example, when Mr. Sidgwick says,—"our moral judgments are apt to be warped and perverted by strong desire" (p. 183), it is obvious that when intuitionalists speak of intuitions, they do not mean "moral judgments." Such judgments are not the "primitive judgments" of which some intuitionalists have spoken. Again when he says, "we too easily *think* that we ought to do what we very much wish to do" (p. 189), there is no doubt of the accuracy of the statement, but "*thinking*" in this sense is not what is meant by intuition in any case which could be adduced. If we are to understand each other,—if we are to discuss the problem with any satisfactory results,—it must be clearly recognised that "moral judgments," even ✓the best of them, do not represent what is meant by intuitions of moral truth. From the time when Kant insisted that we must distinguish between *à priori* and *à posteriori* elements in our knowledge, the exact contrast between intuitional and inferential has been plain, even in cases where *à priori* and *à posteriori* elements mingle in the same state. Judgment may be involved with the action of our senses in perception, but there is not any difficulty in tracing the separate contributions they severally make to the whole. So some degree of intuitional knowledge may be present with our moral judgments, or it may be altogether wanting, but, if present, the exact contributions of intuition and reasoning can be traced. Readers may see this clearly enough indicated by turning to Reid, or Stewart, or Hamilton. Or, if more recent books are taken, it may be seen in Dr. McCosh's *Intuitions;* or in Dr. Noah Porter's *Human Intellect,*—a book which deserves to be better known in this country.

III. Mr. Sidgwick raises the question as to "the object to which the moral intuition is primarily directed," and in answering it turns attention upon points which have no special relation to Intuitionalism.

He says there is "difference of opinion" on the question, and the difference concerns the point whether "the object to which the intuition is primarily directed" is the action, or the motive which leads to it. The question here really is whether moral qualities belong to overt acts, or to motives. But this is not a matter connected with an intuitional theory. These are preliminary questions which must be answered before we construct any theory of our knowledge. We stand on common ground, if we point out that moral quality is attributed to motives, overt acts, or contemplated ends. But though one or other of these is contemplated when a moral judgment is passed, it is a different question, and quite in advance of this, when we inquire whether we possess intuitive knowledge to guide us in our judgments.

IV. Mr. Sidgwick raises the question,—"Have we any Intuitions?" and answers it in the affirmative, but with such restrictions as to involve the whole theory in obscurity.

Whether there are intuitions is a question of psychology, which intuitionalists admit to be settled by simple analysis of the facts of consciousness. Mr. Sidgwick says,—"Probably the statement, that at any rate the majority of men, in the present state of human development, have an intuitive and immediate apprehension of the rightness and wrongness of actions, would never have been denied as a psychological proposition, if it had not usually been presented in combination with two other much more disputable propositions" (p. 185). This seems a large admission, but when explained, it comes to mean that the statement would not have been denied if it had been something else than it is, for the other propositions follow by logical sequence. The other two propositions concern the *validity* and the *origin* of intuitions. Mr. Sidgwick says,—"The existence of moral intuitions has been confounded with their *validity*; and the inquiry into their nature as present facts has been mixed up with an inquiry into their *origin*." If proof were called at this point, our author would not be left altogether without evidence in support of his allegation, but the evidence in defence would be overwhelming. That "intuitive" and "innate" have been often interchanged, as if they were identical, may be granted. But to say that the existence and the validity of intuitions have been confounded, is astounding. Current Utilitarian traditions do indeed allege this of the intuitional theory. But the allegation is the very reverse of accurate, if it be meant as a general characteristic of Intuitionalism. Assuredly intuitionalists do not rest the validity of moral truths on the mind's power in recognising these truths. They hold that the truths are perceived as self-evident, that is, the truths carry their evidence in themselves. They are recognised as objective laws, which intelligence by its nature recognises as objective, that is, as authoritative independently of all subjective considerations. On an Intuitional theory, the validity of the thing known is essentially different from the mode of knowing, namely immediate perception. When we speak of "the validity of intuitions," it is an abbreviated expression for "the validity of the moral principles (said to be) intuitively known."

When next we speak of "origin," the reference is wholly different. The question is, how is it possible for the mind directly to perceive moral truths, or how are intuitions of the higher order possible to mind? The "origin" spoken of is not the origin of the principles or truths, but of such mental exercise as that designated "intuition." And the word "innate" is so far from being identical with "intuitive," that it points to the explanation of the possibility of intuition. The intuitionalist refers to an inherent power of intelligence. This is the very thing which is denied by the experientialist, who thinks himself capable of giving a "natural history" of mind from the rise of sensation. The contrast between the conflicting theories is thus thoroughgoing. The origin of intuitions is held to be explained by an original power of mind. To put it in negative form, intuitions are neither the product of experience, nor the fruit of development.

Let me now leave out of account the validity of the principles, and the origin of the intuitions, to consider the fundamental question whether there are intuitions. Mr. Sidgwick says,—"The mere fact that we continually pass moral judgments does not prove that we ought to accept them as unquestionably valid" (p. 185). Here we are agreed. Intuitionalists make it a great part of their business to protest against the tendency of men to regard current moral judgments as correct and authoritative. I have insisted upon this at great length,—some may think at undue length,—in my *Handbook of Moral Philosophy.* But dropping all reference to the validity, it is of consequence to remark that when Mr. Sidgwick refers to "the mere fact that we continually pass moral judgments," he does not introduce a reference to "intuitions." To speak of moral judgments as if they were "intuitions" is to misunderstand the theory. To proceed to criticism on this supposition is to shoot arrows vainly into the air. Intuitionalists do not regard these "moral judgments," which "we continually pass," as "spontaneous utterances of Conscience." They grant that "we may find it necessary to revise and correct" our moral judgments; but they do not regard this as a revisal and correction of intuitions, or of spontaneous utterances of Conscience. On the contrary, such correction is impossible, and the proposal of it absurd. Still, it is to be borne in mind that Mr. Sidgwick is not altogether responsible for such confusion. Intuitionalists themselves have been guilty of it. Reid admitted the possibility of such correction; Kant treated the mere suggestion with scorn. But, Mr. Sidgwick will find it difficult to show how representations of this loose order have found a place in a work in which he is trying "to throw intuitionalism into a scientific form." It is impossible to devise any form for the theory which can have any pretence to be called "scientific," as long as the "moral judgments" which "we continually pass," are regarded as intuitions. Mr. J. S. Mill clearly saw this, and stated it in his *Utilitarianism.* "Our moral faculty, according to all those of its interpreters who are entitled to the name of thinkers supplies us only with the general principles of moral judgments. . . . The intuitive, no less than what may be termed the inductive, school of ethics, insists on the necessity of general laws" (p. 3). It is needless to multiply evidence of this, but take Reid's *Active Powers* ;—"All moral reasoning rest upon one or more first principles." It is not the moral reasonings which are intuitions. "The first principles of morals are the immediate dictates of the moral faculty" (Hamilton's *Edition* p. 591). Take Kant's *Grundlegung zur Metaphysik der Sitten :* the "Categorical Imperative" is not represented as belonging to our judgments, but to "a law the representation of which alone must determine the will." If the distinction between judgments and first principles be kept before the mind, it is easy to see how Intuitionalists can allow that men blunder as readily in their moral judgments as in other judgments, and even more frequently, and at the same time hold an intuitive knowledge of moral law. This intuitive knowledge is knowledge of that which is binding equally upon all. The presence of such an element can be readily discovered in the midst of our moral judgments. It is not judgment itself,—it can easily be distinguished from a particular decision,—but it is generally present with that decision, underlying and sustaining it, and giving to it a wider application than the person himself contemplates. The acknowledgment of the presence of a general element is distinctly made by Mr. Sidgwick. "If then I assert any action to be right, I imply that it would be right for any other person in my circumstances, or . . . for all persons in precisely similar circumstances" (p. 183). "In a sense, all moral judgments are universal in their import" (p. 189). There is a "potential universality" in the judgment. "Reflective conscientious persons are not in the habit of trusting an unreasoned judgment respecting each case that comes before them ; they are rather inclined to bring it under some general rule, which they believe to be supported upon the common consent of mankind, as well as intuitively discerned by their own moral faculty" *(ib.)*. "No doubt we find such universal moral intuitions in most or all minds" (p. 190). Intuitionalists would remove the "most" from the last statement, but otherwise these passages represent what they regard as palpable matters of fact. By them an immediate perception of self-evident truth is accounted the only adequate explanation of the "potential universality" which appears so singularly in our moral judgments.

I close this brief notice of a single chapter in the *Methods of Ethics*, with the expression of my admiration of the ability manifest everywhere throughout the book. The judicial balancing does, to my thinking, leave too many things in equipoise. But I freely express my belief that Mr. Sidgwick has rendered a great service to Intuitionalism by the line of criticism he has followed in treating of the several virtues. That the criticism is successful, I do not allow; but it is on a line not commonly taken by Utilitarians, and therefore all the more likely to be serviceable. There is besides something of consequence in the fact that Mr. Sidgwick appears in the novel character of an Intuitional Utilitarian. There is thus far, therefore, on his part some homage to Intuitionalism. And this homage is the more important in view of J. S. Mill's admission of the difficulty of reaching a philosophic basis for universal moral obligation (*Utilit.* p. 40), and in view of Professor Bain's suggestion that we should transfer all the higher phases of benevolence into a region of "Optional Morality" (*Ment. and Mor. Science*, p. 435).

H. CALDERWOOD.

V.—MR. JEVONS'S FORMAL LOGIC.

MR. JEVONS'S work, *The Principles of Science*,* since its appearance more than two years ago, has not received anything like the amount of attention it deserves. That such a book should have remained so long unnoticed by the greater reviews that could devote sufficient space to the critical appreciation of its contents, is indeed a signal proof of the need for a special philosophical journal. An attempt will be made in these pages to examine it with due care. It is a work of much excellence, yet also, as it seems to the present writer, open to exception in many ways.

Mr. Jevons begins by expounding a theory of Formal Logic, deductive and inductive. Upon this basis he proceeds to explain the science of Quantity, especially Number, as an outgrowth from pure logic, and in the same relation deals particularly with the theory of Probability, of which he finds the scientific—or, as he commonly calls it, the inductive—investigation of Nature to be a mere application. He next turns aside to set forth the various Methods of Measurement employed in quantitative research. Then follows in full detail his doctrine of Inductive Investigation, with a subsidiary treatment of Generalisation, Analogy, &c., and a preliminary handling of Classification, to be carried out in a future work. Meanwhile the present work reaches its term with some general reflections on the results and limits of Scientific Method.

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* *The Principles of Science: A Treatise on Logic and Scientific Method*, by W. STANLEY JEVONS, M.A., F.R.S. 2 vols. 1874. Macmillan & Co.

The Methods, rather than the Principles, of Science would perhaps be a more appropriate title for the book as it stands. Systematic investigation of principles in any philosophical sense of the word there is none. On the other hand, the exposition of methods employed in the actual investigation of nature is most elaborate and altogether admirable. No such exposition existed before; and, as far as the present writer can judge or can learn from the judgment of competent authorities, the accuracy of Mr. Jevons's acquaintance with the most varied departments of science is singularly great. As a methodologist he has fairly outstripped predecessors as great as Herschel, Whewell and Mill.

If the book really corresponded to its title, Mr. Jevons could hardly have passed so lightly over the question, which he does not omit to raise, concerning those undoubted principles of knowledge commonly called the Laws of Thought. The question is whether these are subjective or objective, and Mr. Jevons is of opinion—an opinion in which he does not stand alone—that they are at once subjective and objective. One wishes, however, that he had given some reasons for his view and not, in a book dealing expressly with the Principles of Science, have contented himself with the bare statement that he is "inclined to regard them as true both in the nature of thought and things" (I. p. 9). Everywhere, indeed, he appears least at ease when he touches on questions properly philosophical; nor is he satisfactory in his psychological references, as on pp. 4, 5, where he cannot commit himself to a statement without an accompaniment of "probably," "almost," or "hardly." Reservations are often very much in place, but there are fundamental questions on which it is proper to make up one's mind. Judged by his book, Mr. Jevons does not equal either Whewell or Mill in philosophical grasp.

The present article will treat only of the first part of the work,* in which the author following in the track of recent logicians seeks to recast the traditional doctrine of Formal Logic, by propounding a new principle of reasoning and, in furtherance of its application, devising an appropriate system of symbolic expression for logical propositions. Since the doctrine of the Quantification of the Predicate was first enunciated in this country by Mr. George Bentham in 1827, and brought into vogue later by Hamilton, various attempts have been made to set aside the older doctrine of proposition and inference which originated with Aristotle; and of late years no one has laboured so persistently at the double work of demolition and reconstruction as Mr. Jevons. In two previous essays, *Pure Logic* (1864), and *Substitution of Similars* (1869), also in a variety of special papers, he has felt his way towards the doctrine which he now propounds in a form that, if not final, yet appears to him sufficiently developed to supersede at once all other modern doctrines and that ancient one against which they were levelled. It is advanced as embodying all the anti-Aristotelian import of the newer theories; at the same time, as systematised or organised beyond any of them; and yet withal as perfectly simple in principle and details when compared with the greatest among them—the very complex and long-drawn system of the late Professor Boole. Nor does Mr. Jevons at all exaggerate the merits of his doctrine in relation to his compeers. He is superior to Boole not only in the simplicity and directness of his logical processes but also in his conception of the relation of logic to mathematics. His own doctrine of Number is not in all respects satisfactory, as may on another occasion be shown, but his arguments (pp. 173, 4, *et alib.*) against Boole's notion of logic as a special kind of algebra, are excellent and decisive. We may proceed then to consider Mr. Jevons's doctrine as the best outcome of the modern revolt against the Aristotelian system, sure that nothing has been urged in opposition more strongly than he urges it.

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* Even this to the exclusion of the last chapter in it, dealing with formal Induction, which will best be considered in connection with Mr. Jevons's general doctrine of inductive inference.

Mr. Jevons's Introduction may be described as a summary plea for a statement of the reasoning process which shall be strictly universal and not, "like the ancient syllogism," cover "but a small and not even the most important part" of the whole extent of logical arguments. The universal principle (of "Substitution") suggested is in these words : "So far as there exists sameness, identity or likeness, what is true of one thing will be true of the other." Here there is evidently implied an expression of logical propositions in the form of equations, and accordingly a general justification is offered for such a mode of expression, while an appropriate system of symbols is indicated. A chapter on Terms is then placed first according to the usage of logicians, and Mr. Jevons has both amendments and advances to propose upon the common doctrine, besides fixing more exactly the nature and conditions of his symbolical expression of the terminal elements of propositions. The next chapter deals with Propositions themselves, and contains all the express arguments the author has to offer for putting them into the equational form. He is now in a position to treat of Direct Deduction, which consists in an application of his principle of Substitution to the terms of (equational) propositions under the first law of thought (Identity), and here he seeks to show how small a part of all deductive reasoning is represented by the forms of Syllogism, also how imperfect is the representation. There remains the process of Indirect Deduction, consisting in the practice of Substitution under the laws of Contradiction and Excluded Middle (Duality) as well as Identity; this has however to be prefaced by a consideration of Disjunctive Propositions, since the alternative relation *(either-or)* is employed in the expression of any logical notion in terms of another according to the law of Duality. The Indirect Method of Inference is introduced at first as a merely supplementary process, to be resorted to as the means of proving that a thing cannot be anything else than a particular thing when it cannot be directly proved to be that thing; but it shows itself so powerful that it ends by swallowing up Direct Deduction and remaining alone in the field as the truly universal process of reasoning. It proves to be able to furnish a complete solution of the universal problem: Given any number of logical premisses or conditions, required the description of any class of objects or any term as governed by those conditions; and being a process that follows a fixed unalterable course in all cases, it can be shortened and facilitated by a number of contrivances, on which Mr. Jevons has spent much inventive power. The most remarkable is his famous logical machine, which in a most ingenious fashion does unerringly perform the work of pure logical combination, the mind by a conscious process having first brought the premisses given into a definite symbolic form and again at the close having to interpret the results mechanically attained.

There is some difficulty in assigning the precise *idée-mère* of the system. Mr. Jevons does not say whether reasoning is what he describes it—a process of substitution—because propositions ultimately understood are equations, or whether it is the substitutive character of reasoning that necessitates the adoption in logic of the equational form. On the whole the latter seems to be his view, since he allows that propositions may be expressed otherwise; but in any case the two positions are involved with each other in his mind, and it is evident from the beginning that it will be a main part of his task to develop a doctrine of Proposition suited to the principle of Substitution. Hence the rough outline of such a doctrine advanced in the Introduction; where he maintains that the analogy between the relation of subject and predicate in logical propositions and the relation of the two terms in mathematical equations justifies the use of the mathematical sign = for the logical copula. At this stage he does not urge that the sign ought always to be so employed, for he even speaks (p. 20) of equality as but one of many relations that may subsist between logical terms, and from this point of view gives to the general formula of logical inference the new expression: "In whatever relation a thing stands to a second thing, in the same relation it stands to the like or equivalent of that second thing." Here also, however, one equation is presumed before the reasoning, as understood by Mr. Jevons, can proceed, and the critical question remains how to determine equivalence in logical propositions generally. That it can be done is clear to Mr. Jevons, when he asserts shortly afterwards (p. 29) that "every proposition expresses the resemblance or difference of the things denoted by its terms;" but this of course is the very point to be proved and the mere assertion decides nothing.

The chapter on Terms may be lightly passed over. Mr. Jevons, in as far as he adopts the common distinctions (general-singular, abstract-concrete, collective-distributive and the like) does not add anything of importance to the determination of their character, while some of his statements are decidedly loose. In particular he confuses the *singular* and the *proper* name when he charges logicians with erroneously asserting that singular terms are devoid of meaning in intension: Mill, whom he points at, never says any such thing of singulars—says of many singulars quite the reverse—and in denying connotation to proper names is surely correct. Mr. Jevons himself would set up a new class of terms under the name *substantial*, which he finds, oddly enough, to partake of the nature both of abstracts and concretes. Gold, for instance, is a concrete substance, yet is has a uniformity or unity of structure—being gold with all its qualities in every part of it—which allies it with abstracts like redness; for redness, according to Mr. Jevons (p. 34), "so far as it is redness merely, is one and the same everywhere, and possesses absolute oneness or unity." Logicians, he complains, have taken very little notice of such terms. But why should they take any notice of a distinction that is wholly material or extra-logical? Gold is a concrete, so is water and so is lion. What matters it to the logician that you always break up gold, being an elementary substance, into parts of identical character, but not always water, because water is a compound, and never lion, because lion is an organism? If Mr. Jevons will embark upon such distinctions, he will not soon come to the end of them. This one, too, is not happily named. Are not lion and water also substantial? The fault extends to Mr. Jevons's account of collective terms, as the reader may see on p. 35. What remains of the chapter has its importance in relation to the symbolic expression of terms in propositions, and to the central doctrine of Proposition let us pass.

It is now Mr. Jevons's express object to show that all forms of proposition "admit the application of the one same principle of inference that what is true of one thing or circumstance is true of the like or same" (p. 43), and this, we understand, amounts with him to proving that all propositions may be expressed as equations. Propositions, he begins by saying, may assert an identity of time, space, manner, degree or any other circumstance in which things may agree or differ, and in support he cites a number of instances where the notion of sameness or equality is expressed or more or less distinctly implied in the *predicate*. No doubt, there is a sense in which such propositions assert identity, but they make nothing for the general thesis that identity of some kind is what all propositions express. Proceeding however to maintain the thesis in regard to all propositions involving "notions of quality" (which is as much as to say all *logical* propositions whatever),* he finds at once that "the most important class" consists of assertions which may be called "Simple Identities," represented by the formula $A = B$. Let us look at these more closely.

As illustrations of Simple Identities, Mr. Jevons adduces two cases of similar sensible qualities, one or two cases of verbal synonyms, some cases of propositions with singular names as subjects, some cases of definitions, one case of a number of objects brought together into a collective expression, some geometrical equations (*e.g.*, Equilateral triangles = Equiangular triangles), and some expressions concerning uniform and exclusive co-existence of qualities (*e.g.*, Crystals of cubical system = Crystals incapable of double refraction). He mixes all these up together as if they were of equal importance logically; but, while some of them are irrelevant, being propositions of the kind noted before in which the identity or similarity asserted is really part of the predicate, others, it is plain, are propositions only by courtesy, being either of no logical importance, because they are assertions about mere names or about singular things under proper (meaningless) names, or logically important as definitions not as propositions. In short none of the illustrations are of any real account for Mr. Jevons's argument except those falling under the last two heads of the foregoing list. Real or synthetic propositions like those involved in the equations cited or in another often mentioned by Mr. Jevons, Exogens = Dicotyledons, are alone worthy of consideration. Let Mr. Jevons claim all the others as simple identities, similarities or what not as he will, and make formal equations out of every one of them. The question remains whether a real proposition about equilateral triangles or exogens can be legitimately put into the form of an equation with the mark = for copula, or whether equations like those quoted represent the propositions with which logic has to deal.

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* Mr. Jevons speaks here (p. 44) of "confining attention" to the propositions thus described, and leaving over propositions concerned with number and magnitude. In fact he leaves none over, for propositions *about* quantity, which are those he has in view, do in respect of logical form involve what he calls "notions of quality" as much as any others (else, how should logic be the truly fundamental science?); and accordingly he does not scruple (p. 46) to refer to such among others in spite of any previous exclusion.

In point of fact, as Mr. Jevons is forward to allow, logic has many propositions to deal with that are anything but Simple Identities, *e.g.*, Mammals are vertebrates; and propositions of this type, in which the subject is commonly said to be included within the predicate, were taken by Aristotle as fundamental. For this act and his supposed consequent neglect of Simple Identities, the venerable father of logic has many reproaches showered on him (pp. 46, 48, 50, &c.), but Mr. Jevons should look into the *Prior*, to say nothing of the *Posterior, Analytics* and see if Aristotle was as oblivious as he supposes. Choosing to take his Simple Identities as fundamental, Mr. Jevons has to bring the other class into relation with these, and very curious it is to watch his procedure. He had pronounced Simple Identities "the most important class," "all-important," &c., and one would expect the others to be less important. From the first, however, he is forced to call them "an almost equally important kind" (p. 47), while later on they prove to include "the great mass of scientific truths" and "the most common of inductive inferences" (p. 149): they also enter into inferences "almost more frequently" than any others (p. 66). He observes besides that "in ordinary language the verb *is* or *are* expresses mere inclusion more often than not" (p. 48), an assertion which, though far from correct—for in truth the copula by itself means neither inclusion nor identity—affords, one would think, with the other statements as to the scientific importance of this class of propositions, a very sufficient justification for Aristotle's selection of them as fundamental. Mr. Jevons notwithstanding will have identities made of them in subordination to his grand class (how grand we have seen!) of Simple Identities, and asserts, like others before him, that, though in the proposition, Mammalians are vertebrates, the terms are not simply identical, still there is identity between the mammalians and part of the vertebrates. Let the relation then be called a "Partial Identity." Quantifiers of the predicate insert the word *some*, and Boole uses a special symbol V, to mark the partial character of the identity: Mr. Jevons prefers another mode of symbolism. Mammalians (A) are identical with all vertebrates (B) that are mammalians (A): hence we may write $A = AB$, a form, he maintains, which at once fully expresses the whole content of the proposition and brings it into line with the fundamental class of Simple Identities. Add that, in order to get uniformity of copula (to be marked by the sign of equality), he does away with the distinction of affirmative and negative propositions, after the manner of Hobbes and others, by attaching the mark of negation to the predicate, while, after De Morgan, he chooses italics for the symbolic expression of negative terms (*a* for not-A), and we have before us perhaps all that is necessary for the understanding of Mr. Jevons's expression of propositions.*

But we have still to learn the exact meaning of such a Simple Identity as Exogens = Dicotyledons. It means, says Mr. Jevons on p. 19, that "the group of objects denoted by the one term is identical with that denoted by the other in everything except the name." The identity, he farther remarks, "may sometimes arise from the mere imposition of names, but it may also arise from the deepest laws of the constitution of nature." Here and in the words which follow on p. 20, Mr. Jevons clearly enough indicates the difference of verbal and real propositions which in his illustration of Simple Identities he confuses or ignores; but this by the way. To return to the example, he makes still another remark (p. 19), that it is "a logical identity expressing a profound truth concerning the character of vegetables." There is here perhaps a faint suggestion that somehow the *qualities* connoted by the two terms are identical, but Mr. Jevons's view thus far plainly is that the only identity in the case is identity of objects denoted: the qualities connoted by the terms are indeed expressly different. So elsewhere (p. 58) he tells us pointedly that the equation means "that every individual falling under one name falls equally under the other." He adds, it is true, an alternative reading—"That the qualities which belong to all exogens are the same as those which belong to all dicotyledons"—which seems at variance with the other; but, rightly understood or given, it comes to the same thing. As it stands, the reading is of course erroneous if it means, as the words most naturally suggest, that the exogenous quality and the dicotyledonous quality are identical, not to say that it would, if valid, turn the proposition into one purely verbal. The true reading however which Mr. Jevons must be supposed to have in view is—that the qualities which belong to all exogens as such and the qualities which belong to all dicotyledons as such are always found together in the same objects. Thus we are brought back to identity of *objects*. And it may be freely granted that, where there is such thoroughgoing identity of the objects denoted by two names of different connotation, the substitution of one for the other is in this sense admissible that precisely the same objects will always be pointed at by either. It is also, no doubt, possible to mark this particular fact by the use of the mathematical sign for equality.

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* He distinguishes, it is true, another "highly important class of propositions" (p. 51) under the name of Limited Identities, with the formula $AB = AC$, meaning: "Within the sphere of the class of things A, all the Bs are all the Cs;" but this class we may neglect. I remark only in passing that the example given by Mr. Jevons—Plants that are large are the plants that are devoid of locomotive power—though one sees how it *might* be represented by the formula, can hardly be so represented consistently with his symbolic expression of the other classes.

Next as to Partial Identities. It is equally true, in the expression Mammalians = Mammalian Vertebrates, that the same objects are indicated or denoted by the two terms of the equation; and the substitution in any case of the one for the other will always be admissible in the sense that precisely the same objects will continue to be meant under the more complex as under the simpler description. So far there is no more objection to the equational form here than before. But how then is the identity, what Mr. Jevons here calls it, *partial?* It is as complete as in the class of Simple Identities: indeed, if it were not so, it would be impossible to use the sign of equality or to practise that process of substitution (reasoning) for the sake of which the equational expression is adopted. What Mr. Jevons means by calling it partial is of course plain enough: he is thinking of the terms, not as they appear after manipulation in the equation, but as they appeared in the original proposition, where the terms are not simply interchangeable—do not indicate precisely the same objects—but are interchangeable only under certain conditions laid down in the doctrine of logical Conversion. In short, the equation in this case appears as a highly artificial expression for the natural proposition—artificial in the literal sense that work has had to be done upon the proposition to bring it into the new form, and, if it is called a *partial* Identity, artificial also in the other sense of being a hybrid form—neither proposition nor equation. Mr. Jevons, it may here be added, claims as the first fruit of his theory—that it supersedes the whole doctrine of Conversion (p. 55); and we are now in a position to judge with what reason. If you take a proposition, Mammalians are vertebrates, and first carefully inquire what limits must be put upon the interchange of its terms, and then express those limits by a symbol, and finally, as you then may, express the whole as an equation, the very meaning of which is that it holds either way,—no doubt, you need the doctrine of Conversion no more; but you have assumed and used it in the preliminary process all the same. In truth, you have at the end not only surmounted Conversion: you have also got rid of Subject and Predicate—which means, if it means anything, that in attaining Equation you have abolished Proposition. Perhaps it is well so, but at least let it be understood, and let us talk no more in logic of "propositions."

Mr. Jevons, however, is perfectly aware that his expression for the common logical proposition may seem "artificial and complicated," and he gives due notice that it is on "general grounds" he contends for reducing every kind of proposition to the form of an identity (p. 50). These grounds, in character mainly practical, we shall presently examine, but the prior theoretic question, least thought of by Mr. Jevons, must first be once for all considered. The question is whether the logician, dealing with Thought, must start from Equations of the type A=B or from Propositions of the type A is B. If from Equations, they will be of the type of Mr. Jevons's Simple Identities, because all others, for example Partial Identities, are intelligible only as approximations to the simple type, and, but for the existence of the class represented by A=B, it would hardly occur to anybody to express the proposition A is B in the form of an equation (A=AB or otherwise). If from Propositions, they will be of the common type A is B, because no simpler conjunction of subject and predicate can be assigned. The question then resolves itself into another: Which of the two expressions is really the simpler and truly represents the fundamental act of Thought?

Mr. Jevons can only be understood as maintaining that it is the expression A=B. This appears from the whole course of his exposition, from his oft-repeated attacks on Aristotle (who took precisely the opposite view), and very expressly in a passage (p. 135) where he stigmatises as "the most serious error" of De Morgan's logic his holding "that because the proposition All A's are all B's (A=B) was but another expression for the two propositions All A's are B's and All B's are A's it must be a composite and not really an elementary form of proposition." That is to say: the expression A=B *is* an elementary form of proposition and, for the reason just stated, *the* elementary form. But Mr. Jevons nowhere denies, nay himself repeatedly asserts, that the one expression A=B may be resolved into, or, what is the same thing, includes the two expressions A=AB (A is B) and B=BA (B is A); while his ingenious logical machine positively refuses to entertain the Simple Identity except in this double form. How can he then deny that the proposition A is B is in the truest sense simpler and more fundamental than the manifestly complex expression A=B; that this latter is not a logical proposition at all but a shorthand expression for two logical propositions which cannot farther be resolved? All that he says in reply to the dumb protest of his machine is that he does not think the "remarkable fact" of its taking in only the common logical proposition does really militate against the simplicity of his equational form A=B (p. 129). All the argument that he urges for the simplicity of the form is given at p. 71, where he asserts it to be more "simple and general" than either A is B or B is A, apparently because it follows from the two taken together and contains as much information as both of them! That seems a strange inversion of the meaning of generality and simplicity; and, for my part, I cannot understand how, in point of theory, any question remains. The question of the practical utility of equational or propositional expression is a different one and must be separately considered; but, in point of theory, it surely seems final to say that, if a form can be resolved into two other forms and each of these cannot farther be resolved either back again into the first or into anything simpler, we have got hold of elements or what may pass for such. The proposition A is B is such an elementary form in logic and expresses an act of thought as judgment than which none simpler can be assigned. The expression A=B (all A is all B) is not elementary, because it stands for two distinct judgments at once.

From the theoretic point of view there is, moreover, another fundamental objection to the use in logic of the sign for equality. The only sense in which it can be understood, when applied to logical propositions, is, as we saw, to represent identity of the objects denoted by the terms: if understood of the attributes connoted by the terms, it does not at all express the true import of a real (synthetic) proposition. But it is precisely by their attributes—the aspect which cannot be expressed in equational form—that we *think* of things or bring them into logical relation, as Mr. Jevons allows (p. 58) when he says in language of his own (which I do not wholly adopt) that "there are many reasons for believing that the intensive or qualitative form of reasoning is the primary or fundamental one." I hold, therefore, on this ground also, that the equational form is theoretically inadmissible in logic. If, notwithstanding, Mr. Jevons is able, as we shall see, to work out with it a consistent doctrine of reasoning, this is due to the fact that connotation and denotation stand in a definite relation; and the doctrine may have its practical justification. But the theoretic difficulty remains.

We may now proceed to consider the grounds, mainly practical, upon which Mr. Jevons himself rests the credit of his doctrine with its equational base. General harmony, he contends, is established among all parts of reasoning (p. 50), and thereby a solution of the general logical problem is rendered possible (p. 105). He speaks also of Aristotle destroying "the deep analogies which bind together logical and mathematical reasoning" (p. 48), and by implication claims that his doctrine reveals them. This second point may first be shortly disposed of.

Save with the practical view of securing for logic the full use of algebraical processes, it is not clear why it should be a special object to establish analogies between logical and "mathematical" reasoning; for, if logic is the fundamental science, as Mr. Jevons triumphantly argues against Boole, there seems no meaning in seeking to do more than determine the exact logical import of mathematical, as of other scientific, processes. It is clear, however, that the supposed practical advantage cannot be secured without subordinating logic to algebra. Now could there be a more effective way of throwing doubt on its fundamental character than to find that specially mathematical processes are applicable in logic? Even the use of the single sign for equality is fraught with peril in this respect, more especially as upon it depend any other "deep analogies" there may be. Whether there be analogy or not between the sign in mathematics and the copula in logic, the sign is a mathematical one and cannot be used in logic without giving to mathematics from which it is drawn a prerogative character. Mr. Jevons accordingly, for all his opposition to Boole, is not proof against the temptation to settle logical questions offhand upon grounds of mathematical analogy; as where, for example, he urges against the doctrine of logical Conversion the usage of the mathematician who "would not think it worth mention that if $x=y$ then also $y=x$" (p. 56); obviously begging the very point in question as to the identity of subject and predicate with the terms of an algebraical equation. So much for the fundamental analogy. For the rest let us hear Mr. Jevons himself on the other side of the question. At p. 81, he tells us that originally he agreed with Boole in using the sign + for the conjunction *or* as marking logical alternation, but agrees no longer because the analogy between mathematical addition and logical alternation is "of a very partial character." Then he adds "that there is such profound difference between a logical and a mathematical term as should prevent our uniting them by the same symbol." Now I do not suppose that in this last statement, general as the wording is, Mr. Jevons is thinking of anything but the particular symbol + which he is anxious to extrude from logic; but I do not see why it does not tell with equal force against the use of the symbol =, the true fount and origin of the evil against which he finds it thus necessary to protest. In short we have not yet got from Mr. Jevons a practical, any more than a theoretic, reason for the introduction of the fundamental symbol, and we do find him uttering a most impressive warning against a practical danger which it most naturally entails. The justification of the first step we must therefore look for elsewhere, namely, in that perfectly harmonious doctrine of reasoning which, we are led to suppose, can thus and not otherwise be developed.

The mode of reasoning first considered by Mr. Jevons, Direct Deduction, consists, as before mentioned, in Substitution practised under the one law of Identity, or, in other words, upon the premisses as given. Here, neglecting minor matters, let us at once note the points which he seeks to make against Syllogism, to the advantage of his own method. The syllogistic doctrine, he says, (1) takes no account of inferences involving Simple Identities either exclusively or along with Partials, and (2), where it is applicable, namely to Partial Identities, it draws an incomplete conclusion (p. 69), nay sometimes even a dubious one (p. 72), while it does its work always in a clumsy incomprehensive way (p. 67) and moreover has to be supplemented by elaborate rules for the avoidance of Fallacies (p. 75). These two last heads of the second charge cannot be met without comparing in detail Mr. Jevons's plan for obviating the special doctrines of Figure and Mood and of Fallacies, and I will merely say that the attentive reader will find the simplification much more apparent than real.* The main charges against Syllogism one is bound to meet. For this it is important to note what Mr. Jevons means by logical conclusion or Inference. He finds it not easy to say, but at last (p. 137) commits himself to the assertion that "logical change may perhaps best be described as consisting in the determination of a relation between certain classes of objects from a relation between certain other classes." Now turn to the "inferences," as he calls them, which he charges "the ancient syllogistic system" with overlooking. Prominent among them are assertions of "equivalency of words," interchangeability of definitions and the like (pp. 62-5). But these are no inferences at all, either as understood by any serious upholder of syllogism or, as we have just seen, by Mr. Jevons himself. It is true that amid such utterly trivial cases of verbal re-expression Mr. Jevons cites some cases of true (formal) inference from real compound assertions in the form of equations (see in particular one at the head of p. 64), but Aristotle, as already suggested, did by no means overlook such, though very rightly he did not make them fundamental in his system. As for the charge of incompleteness brought against the common syllogistic conclusion, let it be given in Mr. Jevons's own words: "From Sodium is a metal and Metals conduct electricity, we inferred that Sodium = Sodium metal conducting electricity, whereas the old logic simply concludes that Sodium conducts electricity" (p. 69). I ask which form of the conclusion best corresponds with Mr. Jevons's own definition of logical change or inference. There is some meaning in calling the common syllogistic conclusion an inference (formal): Mr. Jevons's so-called conclusion is a summing-up—a compendious description. Lastly, the still graver charge insinuated that the syllogism sometimes yields a conclusion that is open to positive misinterpretation (p. 72) has only to be looked at to fall away. From the two assertions, Potassium is a metal and Potassium floats on water, the syllogistic conclusion is that Some metal floats on water. Mr. Jevons objects that some metal (or, as he writes it, metals) is here liable to be understood too widely, when in fact all you can be sure of from the premisses is that the one metal potassium floats. But he ought to remember that *some* in logic means *not-none* and that only. How can it then be understood here too widely? In what respect is the

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* The reader will also find some wholly misdirected argument on p. 76

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where Mr. Jevons contests the universality of the rule that two negative premisses yield no conclusion. The example he urges by way of exception is no exception. There are *four* terms in the example, and thus no syllogism, if the premisses are taken as negative propositions; while the minor premiss is an *affirmative* proposition, if the terms are made of the requisite number three.

conclusion not perfectly exact? His own expression Potassium metal = Potassium floating on water, if it can seriously be called a conclusion at all, is not a whit more safe against misinterpretation. Because it does not prove that gold will not float, anybody who cares may stoutly maintain that gold perhaps may. Logic is not meant nor has any power to bar out wilful irrelevancies.

So much for Direct Deduction. It is however in the Indirect Method of Inference that Mr. Jevons's doctrine culminates, affording that solution of the general problem of logic which is the true mark of its superiority. Unfortunately it is just at this stage that it becomes impossible to give in brief form a satisfactory statement of the doctrine as a basis for criticism: Mr. Jevons himself without wasting words takes not a few pages to expound the method fully. The method reposes ultimately on the fact that, under the law of Excluded Middle, anything in logic may be expressed in terms of anything else—in the form, namely, of the disjunctive propositions A is either B or not-B. Conceive then a set of premisses involving several terms (two, three, four, &c.): what possible alternative combinations of the terms there are, without reference to the premisses, may always be fixedly determined, and what particular combinations are possible with reference to, or consistently with, the premisses may then be determined by a process of substitution followed by an application of the law of Contradiction. Those to whom this statement is obscure must go to the book itself, where they will see the whole method not only clearly set forth and copiously illustrated, but gradually brought into such a shape that the machine devised by Mr. Jevons does the purely logical part of the whole process.

It should in any case be evident why Mr. Jevons lays particular stress upon the relation of Disjunction or Alternation and devotes a special chapter to it, though some may wonder why in a theory of pure logic he takes no express account of the relation of Reason and Consequent in hypothetical propositions, upon which disjunctives have hitherto generally been supposed to depend. As it stands, the chapter on Disjunctive Propositions contains much that is of value. Mr. Jevons argues strongly for the view maintained by some logicians (Whately, Mansel, Mill, &c.), against others (Hamilton, Boole, &c.), that *either-or* does not mean *if the one then not the other* but only *if not the one then the other*. Without adopting all his arguments (for here as elsewhere he does not distinguish sufficiently between mere verbal expression and real thought) one can agree with his conclusion so far as to say that logical alternation does not universally mean more than is conveyed by the second of the two hypothetical expressions. It is not clear, however, why Mr. Jevons should argue so elaborately for his conclusion. The alternation he has in view for the development of logical terms under the law of Excluded Middle, as in A is either B or not-B, is one where the alternatives are mutually exclusive; and in no other sense of Alternation can he describe it (which he does at the beginning of the chapter) as a process equal to that otherwise known as logical Division—the inverse process to Generalisation.* All this, however, by the way.

What, then, shall be said of the Indirect Method itself? Undoubtedly it does accomplish all that Mr. Jevons claims for it; and that he has sought not without success for a method which shall solve the problem of logic generally is a merit of which no criticism can rob him. One may hold the method to be artificial and demur to its theoretic base; nevertheless it does what it professes to do, does it more simply and satisfactorily than previous systems (like Boole's) that made the same professions, and *apparently* it does what the traditional system of logic cannot do. Whatever may be said in favour of the bases of the traditional system, it cannot be denied that its supporters have shown the most persistent indisposition to develop it into an effective universal method of reasoning. It has been passed on from century to century in a crystallised form; it appears to admit of no development—nay the boast has been made (though ignorantly) that it was completed once for all by Aristotle; and practical influence over reasoning, except within a certain narrow range, it seems to have none. For all that appears, the adherent of the old logic gets little or no benefit from his science the moment an argument becomes truly complex and passes beyond a small number of rigid forms. No wonder that earnest logicians like Mr. Jevons, anxious for a truly general theory, should be tempted to break away from a system that has proved so barren, and grasp at analogies that may procure for the theory of reasoning something of the pliability and fruitfulness belonging to the science of mathematics. The temptation granted, it cannot be too often repeated that Mr. Jevons has signalised himself above other innovators in devising a system that is practically effective without sacrificing (like Boole's) the independence of Logic altogether.

At the same time it may well be doubted whether Mr. Jevons would not have done better, if, instead of reconstructing logic from its foundation, he had entered into the spirit of the older system, and, seeing it to be theoretically sound, had indulged his scientific ardour in developing that system so as to make it practically fruitful and useful. All the criticism which it is here possible for me to make upon his crowning Indirect Method is, that I believe it would have cost far less trouble to develop the traditional doctrine to meet the cases of complex reasoning he has in view than to devise a brand-new system to the confusion of Aristotle. It is a case where one must have regard equally to soundness of theoretic principle and to ease of practical application. In the foregoing remarks it has been urged in various ways that the older logic is theoretically sound in its bases and that Mr. Jevons's system is theoretically unsound. How shall one decide between them on the other count of practical utility? Would it be unfair to take the most complex instances of reasoning which Mr. Jevons cites as high triumphs—the highest he gives—of his method, and, if one could show that they are more easily solved by the old logic properly interpreted, then infer that even on the practical side the new system is inferior? It would not be a decisive test, for Mr. Jevons might bring forward still more complex problems which one knows not beforehand if one could resolve: but at all events it would not be unfair, nor for that matter undecisive against Mr. Jevons as he appears deliberately in his book. Well then! I affirm that the most complex problems there solved up to those on p. 117 can, as special logical questions, be more easily and shortly dealt with upon the principles and with the recognised methods of the traditional logic; and till I have cases put before me where this doctrine proves to be practically impotent, I am bound, in consideration of its clear theoretic superiority, to prefer it to the system, however ingenious, of Mr. Jevons.*

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* Mr. Jevons says Abstraction (p. 79), but this must be a slip. The inverse of Abstraction is not Division but the well-recognised process of Determination.

EDITOR.

* Take his last and most complex example: "Every A is one only of the two B or C, D is both B and C except when B is E and then it is neither; therefore no A is D." Here the mention of E *as* E has no bearing on the special conclusion A is not D and may be dropt, while the implication is kept in view; otherwise, for simplification, let BC stand for "both B and C," and *bc* for "neither B nor C." The premisses then are

(1) D is either BC or *bc*
(2) A is neither BC nor *bc*

which is a well-recognised form of Dilemma with conclusion A is not D. Or, by expressing (2) as A is-not either BC or *bc*, the conclusion may be got in Camestres. The reader may compare Mr. Jevons's procedure on p. 117. If it be objected that we have here by the traditional processes got only a special conclusion, it is a sufficient reply that any conclusion by itself must be special. What other conclusion from these premisses is the common logic powerless to obtain?

V.—PHILOSOPHY AND SCIENCE.

II.—As regards Psychology.

I have now to advert to a peculiarity which will open up an entirely new branch of the subject. The distinction which has been established in my former paper between the subjective and objective aspects, and which is the basis of that between Philosophy and Science, is one which rests on the support of no previous theory as to the substratum or agent of Consciousness, any more than it rests upon any theory as to a corresponding substratum of Matter, or generally of the objective aspect. No soul, or mind, or ego, or nervous organism, is assumed as the thing which *has* the states of consciousness. No material existent is assumed as the thing which has the properties of resistance or impenetrability, or which is the seat of the forces by which matter is actuated.

On the contrary, and this is the point now specially to be noted, the distinction between the subjective and objective aspects precedes and is required for the formation of any such theory, of whatever character it may be, relative either to Mind or to Matter. This will be clear if we reflect that, before we can devise an hypothesis to account for the existence of either aspect apart from the other, we must have distinguished, however roughly, the two aspects themselves.

Now it will no doubt have occurred to readers who have followed me up to this point, that there has been an important omission in my enumeration of the sciences which run up into philosophy. I have omitted all mention of the science of Psychology. This omission I am about to rectify. Psychology has all states of consciousness for its object-matter; and so far it has precisely the same object-matter as that here attributed to philosophy. Now psychology is a science, and that science which is the peculiar glory of Englishmen, having been if not created yet chiefly cultivated by them. It would seem then that, by simply adding the science of psychology to the list of the other sciences, we cover the same ground and perform the same service as we should do by superposing philosophy on the sciences, as something generically different from them. One or the other appears superfluous, and in such a case the simplest expedient must be the best, and philosophy must give place to a less pretentious rival.

It is here that the remark just made finds its application. The main purpose of Psychology is to investigate the laws by which different states of consciousness either co-exist or follow one another; it leaves behind it the mere analysis of particular co-existences and of particular sequences of conscious states, and by comparing several instances of them endeavours to discover the general laws which connect particular states into sequences or into co-existences. It seeks the conditions of their appearing in this or in that connection. Leaving their mere analysis, which assigns their elements of analysis, their nature, or their conditions *essendi*, it seeks their conditions *existendi*, that is, their genesis and history. It assumes them, therefore, to be not only distinguishable, as in analysis, but also separable, capable of existing as parts in different connections or wholes. It starts from states of consciousness as units, not indeed necessarily capable of existing alone, but still units capable of entering into various combinations.

But this search for the laws, or relations of dependency one on another, between states of consciousness is at once guided by facts to the objective aspect of the states of consciousness, excluding their subjective aspect. It is "things" outside the body which appear to cause "subjective states" within the body. The search for laws of dependency forces us not only to separate the states of consciousness from one another, but also to separate states of consciousness as subjective from their objective aspect, that is, from the same states of consciousness as objective, in other words to separate Subjects generally from Objects generally. For relations of dependency have in all other sciences been found to exist only where the thing from which the dependence moved, that is, the condition or cause, was of a solid and material nature, a substance, capable of existing ἐνεργείᾳ. Psychology, therefore, in seeking the conditions *existendi* of subjective states, seeks them in the laws or in the nature of substances, only reserving the question whether there is, beside the organism and the objects external to it, a substance residing in the organism, but of an immaterial nature, that is, a Soul or Mind. Psychology passes in this way beyond the field of mere subjective-objective analysis, and envisages the particular relations of dependence which particular portions of the subjective aspect have to particular portions of the objective. And it is therefore not permitted, like philosophy, to abstract from the substrate or agent which has the states of consciousness; for it is only in and by such a substance or agent that the causal nexus in its sequences and the dependence in its co-existences can be accounted for.

But if this is the distinction between philosophy and psychology, the question immediately arises—May not philosophy, then, be regarded as a part, the analytical part, of a larger whole, psychology? There are two main reasons against so regarding it. The first is drawn from another application of the remark above made: to do so would involve an inversion of the logical and historical relations between the two. *Historically,* there was the germ of a philosophy, a distinction between the objective and subjective aspects, before there was the germ of a psychology, an inquiry into the conditions of existence of the phenomena of the latter. And *logically,* the distinction of the aspects is the prior condition of the inquiry; for distinction must precede separation, and, as we have seen, it is psychology that first separates the two aspects, in doing which it gives back, as an object of direct consciousness, things which were in philosophy the object of reflective consciousness.

Here we come to the second reason. The analysis of states of consciousness as given in philosophy takes those states in connection with their objective aspects; these objective aspects it is which give us the states to be analysed; but in psychology it is in reference to their conditions in the organism, or other substratum, that they come under analytic dissection. The former is a general, the latter a special, method. There is a common object-matter for analysis, namely, states of consciousness, in both; but in philosophy we look for features which reproduce the world at large, in psychology for features which we can connect, as dependents, with qualities or properties of the conscious organism, or other substrate of consciousness; disconnecting them from their objective aspects in the world of existences, and thus assuming the *separability* of the subjective and objective aspects. And necessarily so, for we are here occupied with the question, among others, how far the subjective states of consciousness are a correct image and reproduction of the objective world. But when we take these same states of consciousness in philosophy, we disconnect them from their conditions in the conscious organism, and connect them with their objective aspects in the world of existences; thus assuming the *inseparability* of the subjective and objective aspects. And we are enabled to do this without danger of erecting subjective fictions into truths, because in philosophy we do not begin with the subjective aspects, but with the objective; we take the ultimate truths of the sciences, and inquire what are their subjective aspects, and do not take any supposed ultimate subjective aspects, and ask what their objective aspects, what their corresponding existences, must be. The method and assumption of philosophy are, in this sense, diametrically opposite to those of psychology. It is a different but perfectly legitimate way of looking at the same phenomena, though in so looking at them they assume a different complexion, and give rise to a different set of distinctions and definitions.

I argue, therefore, that it is not permissible to classify psychology and philosophy, so opposite in point of method, so different in point of object-matter, as parts of a single science; and still less permissible to call philosophy the analytical part of a larger whole, psychology, seeing that philosophy is not only prior in logic and larger in scope, but also has a method corresponding in generality to its larger object-matter.

For let us consider for a moment what it is that constitutes a separate science, and demarcates one science from another. It is not merely an arbitrary difference in point of object-matter; nor yet is it an arbitrary difference in method; but it is the mutual determination of method, in the first instance, by object, and then of object, in the second instance, by method. There is no science of the individual, nor yet of any individual class of things. It is always a general feature or features which is the object of a science. The same individual things are the object of Mechanic by reason of displaying the general feature of potential and kinetic energy, and the object of Chemistry by reason of displaying the general feature of molecular affinity in composition and decomposition. Wherever any general feature is such as to be accessible in a particular way better than in others, that way of access is the method of the science, and that general feature, wherever found, is its object-matter.

Physiology investigates the general feature, Life, wherever found; that is, in living organisms of all varieties. Psychology investigates the general feature, Consciousness, in living organisms, that further feature in them not investigated by physiology. The range of psychology is an enlargement of that of physiology, for only objects in local contact with the organism directly influence its vitality, whereas things not in local contact, but imagined only, may be said to influence its consciousness, and indirectly its vitality — such merely imagined things being the index and evidence of nerve-processes which at once subserve consciousness and are endowed with vitality.

Psychology, then, differs from physiology in this, that it brings in subjective states as part of the general object, Vitality of organisms, and thus gives a new complexion to the phenomena of vitality; it has the old object-matter with additions, and therefore in a new shape. For its method it depends partly on Reflection; as we have seen above, that the subjective aspect must first be *distinguished,* before it can be *separated,* from the objective. But psychology is not the first science to make this use of Reflection, to adopt and employ the distinction of subjective and objective aspects. All the other sciences require it in the same way; the difference is, that they bring into their object-matter portions of the objective aspect only, *i.e.*, Things, the external world; whereas psychology brings into its object-matter subjective states as such.

But what most decisively distinguishes philosophy from psychology, as well as from all the other sciences, is its elevation of Reflection into a method. And this elevation introduces a new feature into the general object-matter, namely, the feature of inseparability of the two aspects. They never were, in fact, separated; but this fact had not been adverted to. To advert to it, to become aware of it as a general truth, is to elevate the act or process of Reflection into a method. In employing it we continually ask what we mean by such and such terms, what is the analysis of such and such percepts. We have thus a method which is all-embracing in its scope, for there is no word, no thought, of which this question may not and must not be asked.

While therefore philosophy is a further differentiation of the general object-matter of psychology and the other sciences, it is also a new method, and the method corresponds to the differentiation. Method and object-matter together make it a separate science, demarcated from psychology very much as psychology is from physiology. Some perhaps there are who would class psychology as a part of physiology, or both as parts of biology. But however we may class them nominally or for occasional convenience, the difference of method, mutually determining and determined by the difference of object-matter, is that which it is practically as well as theoretically important to observe and retain; for it is this which constitutes the permanent articulation of the scientific system, and this by which it corresponds to the distinctions of nature. On this ground therefore I contend, that philosophy is demarcated from psychology by a difference as permanent and complete as that which demarcates psychology from physiology, or any one of the special sciences from the rest.

Let us now cast a glance at the practical bearings of the subject. Philosophy, it has been maintained, is not a part of the larger whole, psychology, in point of theory at least. Is there any reason for treating it in practice as if it were so? If there is, it must be based on the fact that a better and more searching analysis is afforded by treating philosophy as a part of psychology, than by taking it separately and then making it an independent ally. I maintain that there is no better but a worse result on the whole to be anticipated from pursuing the two as if they were one, and that one psychology, than from pursuing the two independently and using each to correct and control the other.

The practical difference may be seen by comparing what is called the English School of philosophy with the Continental. From Bacon downwards all our philosophical writers with but few exceptions (and even in these the theologian has usually preponderated over the philosopher, as in Berkeley and Coleridge) —all our philosophical writers are dominated by the notion of a separation between consciousness and its objects, and approach philosophical questions with the notion of settling what we can know of objects, with what certainty we can know it, and what our wisest course of action is in consequence. But this is to adopt the distinction between the mind in its organism and the world external to the mind, as an ultimate one. Our English writers are thus psychologists in the above explained sense of the term, and not philosophers in the strict sense. All our great triumphs have been won on this basis. Bacon's "Homo naturæ minister et interpres tantum facit et intelligit, quantum de naturæ ordine re vel mente observaverit, nec amplius scit aut potest," shows this in the most unequivocal manner; and so also does the whole First Book of the *Novum Organum*, with its demolition of the Four Idols, and its methods of sound philosophising. The same presupposition is obvious in Locke's* disproof of Innate Ideas. Berkeley's Idealism again, based on his Theory of Vision, is a psychological theory; it resolves the connection between consciousness and its material and external objects, assumed as a causal one, into a causal connection between the mind and its states of consciousness. Hume's system, based upon Berkeley's, and applying his principles, evaporated substantial Mind as completely as Berkeley had evaporated substantial Matter. It was the suicide of a non-philosophical psychology, and was immediately followed by Kant's philosophical reconstruction. Hartley is a thorough-going physiological psychologist, establishing the complete dependence of consciousness on its organism. Very rarely does John Stuart Mill rise fairly and indisputably into the philosophical region, and when there he takes but a short flight; one such occasion is when, in his *Examination of Sir William Hamilton's Philosophy*, he defines Matter as a "permanent possibility of sensation." The existence of Mind, to which he next proceeds, fairly baffles him. Yet this happy invention of a phrase which will render a philosophical conception familar to English readers is a great service to philosophy. When we come to living writers, we find in the speculations of most of them no difference, I at least can find none, in respect to the principle now in question, from those of the great English writers who have preceded them. Take, for example, Mr. Spencer. Although he distinguishes subjective psychology from objective, and maintains of the former that "under its subjective aspect, Psychology is a totally unique science, independent of, and antithetically opposed to, all other sciences whatever. The thoughts and feelings which constitute a consciousness, and are absolutely inaccessible to any but the possessor of that consciousness, form an existence that has no place among the existences with which the rest of the sciences deal;" and though this might seem amply sufficient as an admission of the philosophical principle of the necessity of a subjective and analytic method; yet Mr. Spencer immediately and even in this very enunciation falls back into the separation between the objective and subjective aspects: "Mind still continues to us a something without any kinship to other things;" and Psychology consists of two totally-independent aspects, objective and subjective,"—the two forming together a double science which, as a whole, is quite *sui generis*" (*Principles of Psychology*, I., pp. 140-1). Mr. Spencer has not seen that it is Reflection, in subjective psychology, which perceives the two aspects subjective and objective, and that the two, as so perceived, are inseparable and co-extensive. He speaks of several classes of nervous changes which "have objective aspects only—do not present inner faces to consciousness; and others have subjective aspects in early life but cease to have them in adult life" (p. 104). If so, I would ask, if these nervous changes have *no* subjective aspect, how is it that he is aware of their existence? Mr. Spencer takes the proximate *conditions* of subjective states (conditions *existendi*) for the objective *aspects* of those states.

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* See Mr. T. H. Green's masterly disquisition on Locke, Berkeley, and Hume, in the General Introduction to his and Mr. Grose's recent edition of Hume's *Philosophical Works*. The truth of what I here state about these writers cannot be more fully or more conclusively shown than by that disquisition.

Mr. Spencer's conception of the subjective aspect of Psychology, then, would be totally inadequate to serve as a Philosophy, if any one should put it forward to do so; for it is deficient in generality. Mr. Spencer *distinguishes* it from objective science, and this, so far as it goes, would enable it to serve as a philosophy; but he does more, he *separates* it from objective science in separating it from the objective aspect of things. But if there are objective aspects of things which have *no* subjective aspects, as the last quoted passage shows him to maintain, then the subjective aspect of things, and the subjective analysis which deals with them, must be quite inadequate to deal with things in their most general relations and laws, that is, to philosophise about them.

The comparative narrowness of this point of view is seen when we turn to the development of philosophy in countries where the distinction between man's knowledge and the world external to man was not the dominant one. Beginning with the publication of Telesio's work, *De Natura Rerum juxta propria principia* in 1565, we find in Italy a philosophy of nature ripening into the large all-embracing systems of Giordano Bruno and Campanella. "Bruno and Campanella worked at a metaphysic entirely new, which was to be a metaphysic of identity, to replace the metaphysic of Aristotle, which may be called one of duality and opposition."* And if these two great minds still sought to explain the universe by means of entities imagined out of abstractions, this was no more than was inevitable for men, in that early age, who refused to envisage the problem before them in anything short of its true and vast proportions, and who would have scorned to claim for themselves the title of philosophers while leaving others to solve its hardest questions and encounter its deadliest enemies. English philosophers on the other hand, in declining the pursuit of "formal and final causes" as "barren virgins consecrated to God," were in truth declining for themselves the arduous attempt to include Theology in the philosophical domain, and were thus compelled either to accept it ready-made from the theologians, or leave it to be criticised and combated by others. It is the poets and not the philosophers, it is our Marlowes, our Shakespeares, our Miltons, our Shelleys, who in England have been the real antagonists of a narrow and unphilosophical theology.

Three words are the imperishable contribution of Descartes to modern philosophy, possibly his only incontrovertible one. But these three words are the morning-star which ushers in the new day. In the famous *Cogito ergo sum* is expressed the distinction between consciousness and its objects, in contrast to that between man's knowledge and the world external to man; the fundamental distinction of philosophy as opposed to the fundamental distinction of psychology; the assertion of the moment of self-consciousness or reflection as opposed to the moment of direct consciousness or direct perception.

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* Fiorentino's *Bernardino Telesio*, II, p. 183.

In Leibniz, with whose mind all modern Germany is impregnated, we have again a system of philosophy including psychology within it. The monad of Leibniz was not the monad of Bruno; but, says Sig. Fiorentino, (II. p. 105), "for all that, Bruno and Leibniz have as much resemblance as was possible for two philosophers between whom Descartes had intervened. Bruno, prior to the Cartesian reform, would find the union of opposites in nature; Leibniz, who came after it, in subjective thought, in that power of reflecting the universe which each monad carries within it."

But it was not until Kant that the Cartesian moment of self-consciousness was to become explicit, militant, and finally dominant. And this is the reason of the supreme importance of Kant in philosophy. The difference between the two principles of psychology and philosophy, I mean the two moments of direct and reflective consciousness, the latter involving a distinction without a separation, the former a separation following on a distinction, was dormant and unperceived until Kant, who himself held them both without perceiving their incompatibility, endeavoured to combine them, in the *Critic of Pure Reason*. Kant endeavoured to hold together, as principles equally dominant, the notion of a Mind endowed with faculties and that of a moment of self-consciousness, the so called unity of Apperception. And Kant's system exploded into fragments because it contained these two principles in this close juxtaposition. This showed that one of them was a fiction; there are no such things as innate forms either of the faculty of intuition or of the faculty of thought. This is not yet understood by us English. We are still occupied in expounding Kantianism, as if it was a living system. You might sooner rebuild Solomon's Temple. It is just an instance of what I said at the beginning of the preceding paper about the use of systems; Kant's system was the means of verifying the principles which he believed himself to have discovered, and resulted in the establishment of some, the discrediting of others.

To have, then, two fundamental principles at once, essentially different yet professing to cover the same ground, is impossible; either one must be retained and the other discarded, or else a *modus vivendi* must be found and a separate function assigned to each. Most of the German post-Kantian systems have attempted to discard the psychological, the English the philosophical principle; and to select and discard exclusively either the one or the other would be easy enough, if only facts would allow you to ignore the one which you have discarded. But this is impossible. Sooner or later an exclusive philosophy is wrecked on the rocks of science; and an exclusive psychology on the rocks of philosophy. To discover a *modus vivendi* between the two principles, then, and thus to form a single philosophical whole, with its two doctrines, philosophical and psychological, contra-distinguished and yet combined, so that each may illumine, control, and support, the other—this has been and is the problem of philosophy from Kant's time to ours. It is not a question of sacrificing either, but of combining both in the places and with the functions which each is suited to perform and fill. Now the philosophical principle has been shown above to be the broader and more general of the two, and the questions which spring from it remain to be answered when the psychological principle has adduced its last proof and said its last word. It is a power which must be reckoned with, since it cannot possibly be either ignored or transcended. And we possess in philosophical analysis a mode of criticising all non-scientific speculations, to the irruptions of which the territory of science is constantly exposed, and against which science has no weapon of its own but that of attempting to ignore them. Philosophy in short is alone competent to deal with speculations which, whether they are tenable or whether they are absurd, spring at any rate from a reflective source, and consequently are of a philosophical character.

The English school of thought was based on the acceptance of the scholastic doctrine of Nominalism as a sufficient basis of philosophy. The philosophical schools of the continent on the contrary did not regard any of the three scholastic doctrines usually known as Realism, Conceptualism, and Nominalism, as capable of affording such a basis. In this they were certainly right; the question between these three doctrines, though most important, is a partial one, totally unfit to serve as a basis of philosophy. It concerns what are called Universals, that is, Concepts;—whether they exist or do not exist in Nature. Nominalism left behind it a large field of questions untouched, relating to Percepts. When Locke, for instance, maintained *Nihil in intellectu quod non prius in sensu*, another answer than that of Leibniz—*nisi ipse intellectus*—was at hand; an answer consisting in the further question—But what is *in sensu?* This answer it was which was formulated by Kant, a formulation which was itself open to the objection made above, namely, that it assumed the Mind as separable from the World, by assigning one element of sensation to the Subject and another to the Object. Further analysis than Kant's, but in the same general direction, was therefore a necessity. But the English school ignored the possibility of such an analysis of Locke's *sensus.* They assumed sensations as the atoms, so to speak, of consciousness; and even now, though admitting that these atoms may have distinguishable elements, they do not in practice lay any stress on distinguishing them.

Mr. Spencer's *Principles of Psychology* will again furnish us with an illustration. Accepting as really simple those constituents of Mind which are not decomposable by introspection, he mentions two kinds of proximate components of Mind—Feelings and the Relations between feelings. "Each feeling, as we here define it, is any portion of consciousness which occupies a place sufficiently large to give it a perceivable individuality; which has its individuality marked off from adjacent portions of consciousness by qualitative contrasts; and which, when introspectively contemplated, appears to be homogeneous. These are the essentials. * * * And obviously if it does not occupy in consciousness an appreciable area, or an appreciable duration, it cannot be known as a feeling." "A feeling proper is either made up of like parts that occupy time, or it is made up of like parts that occupy space, or both" (I. p. 163-5).

Here we have what I have called, in my former paper, the pure time and pure space elements of percepts. The feelings proper, though not decomposable by introspection, have yet elements which introspection distinguishes. They are empirical units but metaphysical concretes. Mr. Spencer however leaves behind him their analysis, and passes to the examination of their interconnection. He goes no farther back in analysis than is requisite for his Psychology, no farther than to those units of consciousness which correspond to his ultimate units of physiology, his single hypothetical "nervous shocks." But these units of consciousness are not simple but complex, if we look at them subjectively. In the analysis of direct perception, therefore, there is a great field left untrodden by one of the ablest of modern psychologists.

But the ultimate analysis of perception in reflective or self-consciousness, and not merely in direct, is the question on which philosophical controversy must chiefly hinge, at least for the present. It involves the question of the possibility of the alleged "Intellectual Intuition," of envisaging a substratum common to the two modes of existence, consciousness and objects of consciousness, and of all the various forms which this mode of speculation may assume. And the analysis of direct perception to its furthest limits, not stopping short at Mr. Spencer's admission that it can be analysed, is a prerequisite for the analysis of reflective. It will not suffice for psychology to throw the *onus probandi*, e.g., the proof that we have a "faculty" of Intellectual Intuition, on supporters of the systems of speculation contemplated. The question is one concerning the *contents* of experience, not concerning its *conditions*. It will not do to say,—we have no "organ" for procuring us such and such experiences; we must first inquire what experiences we actually have, and then will follow the question, what "organs" are those by which they are procured. So long as psychological schools can be fairly taxed with narrowness of basis, with not embracing philosophical problems in all their length and breadth, they may hold their ground as science, but they cannot be regarded as judges in matters of philosophy, or pleaders in matters of theology.

Looking finally at another part of the practical bearing of the two methods, the reaction which they exercise on their disciples, we shall find a similar conclusion indicated. The practical result of the larger view of the scope of philosophy, and of the discussions raised by the introduction of the Cartesian moment of self-consciousness into philosophy, both before and after Kant, has been to render philosophy more searchingly analytic. Hardly any analysis of conscious states pure and simple is to be found in English writers, whose strength is expended either on the physiological and physical conditions of those states, or on their sequences in consciousness itself under the title of laws of Association. In German writers, on the other hand, analysis of this kind is very frequent and very excellent. They map the country before exploring it in detail. The works of Leibniz, and especially of Wolff, are storehouses of distinctions; Kant analyses and analyses again, first from one point of view, then from another, making each new analysis throw light on former ones. If of Hegel's great system not one stone should remain upon another, his all-penetrating, all-comprehending analyses will for ever remain as instructive and as stimulating to the mental powers, as are those of Plato and those of Aristotle, whose systems have long ceased to find disciples.

Far be it from me to depreciate the powers or the achievements of my countrymen. I glory in Bentham, in Locke, in Hobbes, in Bacon; I glory in William of Ockham and all his train:—

> "πλατεῖαι πάντοθεν λογίοισιν ἐντὶ πρόσοδοι
> νᾶσον εὐκλέα τάνδε κοσμεῖν."

But yet is there a more excellent way; and we shall not merge our individuality by forming an alliance, nor need we strike our colours in setting sail upon a broader stream. *A greater* *and more comprehensive philosophy can arise in the line of Locke than can ever arise in the line of Leibniz;* but only on the condition of replacing our narrow psychological horizon by an horizon of true philosophical range. This being done, our psychological and scientific method is at least as necessary to the soundness, as the philosophical to the comprehensiveness, of a complete philosophy.

Briefly, then, to resume the position at which we have now arrived, we may define Philosophy, in contradistinction to Psychological Science, as the ultimate analysis of states of consciousness in connection with their objective aspects, abstracting from their conditions in the organism; and in contradistinction to Science in general, as the subjective analysis of the ultimate notions of the Sciences. In both alike it has the three characteristics of being ultimate, subjective, and analytic. The first characteristic, *ultimate,* belongs to philosophy *ex hypothesi.* That is to say, only such inquiries as are ultimate, which stand nearest to and endeavour to penetrate farther into the unknown, the "dark foundations" of being, do we set apart as search and not as science. The second, *subjective,* rests on a simple fact of experience, the apparent reduplication of objects in subjectivity; consciousness being like light, which reveals itself and the object at once; the object and the object seen are one. The third, *analytic,* is determined by the process of Reflection being made the principle of the method pursued. But this third characteristic is open to the doubt, whether it entirely exhausts the possibilities of philosophy; whether it does not restrict philosophy to too narrow a field; whether philosophy itself may not be synthetic also. It is clear that philosophy, being subjective and ultimate, must be reflective, and therefore analytic of its object-matter; the question is, whether it is analytic only. The remarks which I have to offer on this point must be reserved for the following paper.

SHADWORTH H. HODGSON.

VII.—PHILOSOPHY AT CAMBRIDGE.

IF any one fifty years ago had been called upon to write a paper on Philosophy at Cambridge, he might reasonably have felt that he had been set to the ancient tyrannical task of making bricks without straw.

No doubt at this as at any other time in the history of the University, there were persons reading and reflecting on moral and metaphysical subjects—probably more than at most other times, when, in Trinity alone, Whewell, Thirlwall and Hare were lecturing, and Maurice and Sterling were undergraduates. But the official recognition of such studies in the academic system had dwindled to the merest shadow of a shade; and there was as yet no resident writer on philosophy to supply such extra-official guidance or stimulus as would in any way impress the stamp of Cambridge upon the philosophical speculation still carried on within the limits of the University. Philosophy had, for all practical purposes, lost its old place in the Cambridge scheme of studies; and a new place had not yet been found for it. The old system of disputations for degrees, which had maintained some knowledge of logical forms and some interest in philosophical matters, had finally decayed into a pure ceremony and was on the point of being formally abolished; while at the same time the share possessed by moral and metaphysical philosophy in the modern system of paper-examinations, which had always been comparatively inconsiderable, was now quite evanescent. There was a little teaching of Locke in one or two colleges, but the life had quite gone out of it. Paley's moral system was still officially prescribed—it was still orthodox to maintain formally in the empty arts' schools that "recte statuit Paleius de utilitate"—but his method had lost all real influence: while yet the reaction against it had not found the definite and reasoned expression that Sedgwick and Whewell were presently to give to it. There was a Professor of Casuistry in existence: but he was still a κωφὸν πρόσωπον in the academic drama. Herschel's *Discourse on Natural Philosophy* had not yet come to break the frost of indifference with which methodology had been treated in the university of Bacon, and to commence a philosophical debate which is still vigorously continued, and in which Cambridge has taken an important, if not the most distinguished, part. The sway of Coleridge over the reflective youth of England was great and steadily growing: but the years he had spent in Cambridge had established no spiritual bond between him and his Alma Mater, and such influence as he exercised there was as essentially foreign as Bentham's at Oxford.

In fact, the educational movement in Cambridge was entirely absorbed in developing and determining the mutual relations of Classics, Mathematics and Physics: and was content to leave Ethics and Metaphysics to the care of Scotland and Germany.

In the half-century that has since elapsed a considerable change has taken place; though even now the position of Philosophy in Cambridge would hardly satisfy an ardent votary of the study. Before proceeding to characterise this position more particularly, it may be interesting to explain how the university of More and Cudworth and Clarke passed into the state above indicated, and how it emerged out of it again: especially since such a historical sketch will lead us to anticipate the most important peculiarities in the present relation of Cambridge to Philosophy.*

But first it must be observed that in this inquiry it is peculiarly necessary to proceed methodically, and avoid ambiguity in our principal term. Most Cambridge men of the eighteenth century would have been much startled by being told that Philosophy was declining in their university. They would have replied that, on the contrary, sound and exact philosophical knowledge was just what their Alma Mater was exerting herself to maintain and spread. For the use of the general term Philosophy to mean Physics, which continental writers have noticed as an English peculiarity, has been especially at home in Cambridge since the time of Newton. No doubt the qualified term "Natural Philosophy" would always have been considered more proper and precise: but still "Philosophy" without qualification would have been commonly understood to mean Natural Philosophy. We find, for example, that the enlightened Dr. Jebb, describing the examinations of the university as they existed in 1772, speaks of the "transition from the elements of Mathematics to the four branches of philosophy, viz. Mechanics, Hydrostatics, Apparent Astromony and Optics. . . . The Moderator," he goes on to say, "having closed the philosophical examination sometimes asks a few questions in Locke's *Essay on the Human Understanding*, Butler's *Analogy*, or Clarke's *Attributes*." Many similar passages might be quoted, even from writers so recent as the late Dean Peacock.

I have drawn attention to this usage, not merely to prevent any confusion of thought, but because it takes us back to the right point of view for understanding the process by which Mathematics and Mathematical Physics became the peculiar study of Cambridge. The antithesis between Mathematics and Philosophy as educational instruments, which was defined and sharpened about forty years ago by the controversy between Whewell and Hamilton, was as far as possible from the minds of Barrow or Sanderson or the other active and enlightened teachers who were the chief agents in bringing about this change. It was no desertion of the study of

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* My thanks are due to several Cambridge residents, with older or better-stored memories than mine, who have kindly supplied me with some of the facts mentioned in this sketch.

Things in General for the narrower though exacter study of Quantity Discrete and Continuous, that they had in view. It was rather the bringing into due prominence of the new kind of philosophy which Galileo and Descartes and afterwards Newton had developed to such striking results: by the side of which the older metaphysical studies must be allowed to contrast somewhat unfavourably. Of this new philosophy mathematics was clearly the indispensable organon. The accomplished Barrow, whose academic activity coincided with and partly constituted the first stage of this process, tells the students of his time that they show their love of true Philosophy in not wasting their time on disputations concerning "entia rationis, materia prima and such like scholastic chimeras" but in turning ardently to Mathematics instead. "Jam tandem vos serio Philosophiæ operam daturos bona spes est, Veritatis inquisitionem non tantum a dialecticis argutiis sed, quod antiquis philosophiis solemne erat, ab iis nobilissimis scientiis auspicantes" (*Oratio ad Academicos in Comitiis*, 1659). This ardour would naturally be much intensified, in both teachers and pupils, by the Newtonian discoveries. From one point of view these might fairly be regarded as a triumph for academic studies. A university professor, by the recognised academic method of syllogistic demonstration from abstract principles, had attained a grasp of reality which no mere observers or experimenters could have reached. It was not surprising that in the age immediately succeeding Newton the active and progressive portion of the university should be especially concerned with the development of these studies: nor that the sustained effort to spread the new truths and impart the method by which they had been won should have reinvigorated the educational functions of the university and restored life and reality to the exercises imposed as a condition of obtaining the first degree. In the final examination, reformed and raised in importance during this period, they thus naturally occupied the chief place; and even in the preliminary acts or disputations in the schools (which for a long time after the development of the modern system of paper-examinations continued to have considerable influence on the award of academic honours), physical questions from Descartes or Newton were discussed with more zest than the old scholastic topics could arouse.

At the same time, it must not be thought that the movement I am describing was in any sense intentionally directed against moral and metaphysical speculations generally. It was, no doubt, in conscious antagonism to the "dull, crabbed system of Aristotle's Logic;" but such antagonism found a welcome ally in the modern psychology. In fact, it appears that Locke became naturalised at Cambridge about the same time as Newton; just as in the preceding century the study of Descartes had been encouraged by the Platonists. The same wave of reform that succeeded in enthroning the *Principia*, also established the *Essay on the Human Understanding* as the recognised storehouse of "quæstiones metaphysicæ." While Clarke, again—perhaps the most genuinely metaphysical genius that England has produced since the middle ages—was an ardent disciple of Newton, and took a prominent part in introducing the Newtonian physics into the educational course of Cambridge; at the same time that he was endeavouring to develop his master's views, on their theologico-metaphysical side, into a completely reasoned system of the universe, and to place the science of ethics on a footing as closely analogous as possible to that of mathematics. For a time Clarke's moral and metaphysical speculations seem to have had much currency in his university; and his *Attributes* kept till the end of the century a regular place in philosophical lectures and disputations by the side of Locke's *Essay*. But when the air of cogency worn by Clarke's demonstrations was well ascertained to be illusory, and it became plain that his system would end in argumentation as sterile as that of any scholastic metaphysician, the very comparison that it courted with mathematical and physical studies would probably tend to enhance the superior attractions of the clear, certain, progressive knowledge attainable by the latter.* At any rate, we find that, owing partly to the greater intrinsic interest of these latter subjects, partly to their greater fitness for the paper-examinations of which the influence seems to have steadily increased from the time of their first institution, and partly to the more sustained and concentrated labour gradually required from undergraduates if they would reach the ever-rising level of mathematical attainment, such ethical and metaphysical study as was still kept up occupied a gradually decreasing share of attention. So that in 1772 we have the state of things described by Dr. Jebb in the passage already quoted, when "a very superficial knowledge in morality and metaphysics" was held to suffice, as the highest academical honours were invariably given to "the best proficients in mathematics and natural philosophy."

A certain reaction, however, seems to have been taking place at the very time that Dr. Jebb wrote; at least, an attempt was made a few years after by the university authorities to arrest the decline of the older studies. In 1779 a grace was passed, adding a fourth day to the examination, in order that one of the four days might be devoted to questions in "Natural Religion, Moral Philosophy, and Locke." This movement was probably due to the influence, if not of the energetic agitator himself from whose pamphlet I have quoted, at least of the set of ecclesiastical and academic Liberals of which he was a prominent member. This set included, we must observe, the one really influential writer on moral philosophy that Cambridge had produced since the beginning of the century, William Paley. Turning, with the prestige which even then attached to the position of Senior Wrangler, from the mathematico-physical studies which had gained him this distinction, Paley devoted himself during the years (from 1767 to 1776) in which he was lecturing at Christ's to the metaphysical and moral department of the instruction. It was not till 1785 that the substance of his lectures on moral and political philosophy appeared in the treatise since so well known; but we find that this book almost immediately on its appearance was introduced into the academic curriculum, and kept its place there till very recent times,—together with his other treatise on the *Evidences of Christianity*, which has not even yet been superseded. For half a century "Locke and Paley" figured as the inseparable pair of thinkers appointed by Cambridge as her philosophical representatives, much as "Aristotle and Butler" were at Oxford; and for some time, at least, the study of their systems, along with a few other works, formed a substantive part of a reading man's course. It seems that about this period it became customary, in "keeping an act" for the first degree, to select a moral or metaphysical thesis for actual disputation; and there is a tradition of men obtaining honours on the strength of their "Locke" as late as 1804.* But a really deep and widespread interest in the writings of Locke and Paley could not be maintained without fresh thought on their subjects; and as no indigenous thinker appeared to stimulate this, they were gradually "crowded out" of the course, partly by the irresistible development of mathematics, partly by the movement in favour of classical studies which led to the establishment of the Classical Tripos in 1822. The ancient system of disputations—for which "quæstiones ethicæ" and "metaphysicæ" had a natural affinity—and the ethical and metaphysical element in the paper-examination were destined to nearly simultaneous extinction. In 1839 the last Act was kept; and about ten years before the traditional papers on "Locke and Paley" were, for the first time, avowedly constructed for the πολλοὶ only: whose brains not being burdened with mathematics were supposed to have room for a modicum of moral reflection. There were, as I have said, not a few residents in Cambridge at the time who were earnestly concerned for philosophy: but no one came forward to plead for this meagre remnant of the old system. It was probably felt that by the establishment of the Classical Tripos Cambridge had taken a finally decisive step in the direction of specialising studies. The old single course of education in what every well-educated man ought to know had been gradually compressed, by force of circumstances rather than the deliberate intention of anybody, into a somewhat narrow road to what had now to be acknowledged as a purely "Mathematical" Tripos: by the side of which another equally straight path had been opened to academic distinction, in the study of Greek and Latin. And since the distribution of the Fellowships had now come to depend, in the great majority of colleges, almost entirely on the university examinations, it would seem that if any other studies besides classics and mathematics were to gain the attention of the *alumni* of Cambridge, they must establish a claim to a Tripos of their own.

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* Some effect of this kind is asserted by Law—an old Cambridge man —in his notes to King's *Origin of Evil;* but I am not sure that he is an impartial witness.

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* Archdeacon Hollingworth, Norrisian Professor of Divinity, was supposed to have gained his place in the Tripos by this part of his work. It should be observed, however, that his was an exceptional case, and that he was only a "Junior Optime."

The ultimate achievement of this result, in the case of the Moral Sciences, may be traced to a combination of causes: but it is primarily to be viewed as part of a general reaction against the narrowness of the traditional Cambridge curriculum, which in some respects had only been made more apparent by the institution of the Classical Tripos. Very early in the career of this new Tripos it began to be felt that Greek philosophy deserved more distinct recognition in the classical course.* In Trinity College a succession of remarkable lecturers—Julius Hare, Thirlwall and Thompson—laboured to secure in their own college a somewhat more intelligent study of the works of Plato and Aristotle. Meanwhile on the other, mathematico-physical, side of Cambridge studies some general philosophic interest was aroused by the appearance of Herschel's *Discourse on Natural Philosophy* in 1831. A couple of years afterwards, Sedgwick's *Discourse on the Studies of Cambridge* and the controversy which followed it, still further stirred the waters. But it is to Whewell more than to any other single man that the revival of Philosophy in Cambridge is to be attributed. Although (as I have noticed), in his controversy with Hamilton and elsewhere, he maintained the superiority of mathematics and classics over all other studies, as the main instruments of university education, this conviction did not prevent him from making sincere and sustained efforts to secure for other sciences that place in the academic system which he conceived to be their due. For this end he worked not only in the modern external fashion by constructing examinations, but also by the older, more spiritual, method of teaching and speculating earnestly and effectively on philosophical subjects. In 1839, from the long silent chair of Casuistry, he began to deliver lectures on Moral Philosophy; of which at least the earlier, historical, courses were found highly attractive. Some years previously he had transformed the traditional paper on philosophy in the fellowship-examination of his own college, and made it an effective instrument for inducing the abler candidates for Trinity fellowships to undertake a systematic course of philosophical reading after their first degree. Meanwhile his own elaborate investigation of the methods of modern science was being prosecuted to fruitful and stimulating results. In 1840 his *Philosophy of the Inductive Sciences* appeared. Ten years later he took a chief part in constructing the first Moral Sciences Tripos. The scheme of this examination, however, was quite inadequate, being in fact formed by a combination, not of the different divisions or aspects in which philosophy is commonly studied, but of certain subjects in which the university happened to possess professors: thus it did not include Logic or Metaphysics, or even Psychology, except under the head of Moral Philosophy. But from the point of view of the students whom it was intended to attract this Tripos had the graver defect that it did not confer a degree: for the badge of inferiority thus attached to moral sciences, in comparison with mathematics and classics, rendered it difficult for them even to aspire to the substantial rewards which the colleges had to bestow. In 1860 this badge was removed, and at the same time a more complete scheme of examinations constructed; of which, though it has since been twice modified, the main features still remain. This final stage of development was reached with Whewell's consent and co-operation; but the most active part in effecting it was taken by the Rev. J. B. Mayor of St. John's—the college which about this time assumed the lead in promoting the study of philosophy, not only by instituting lectures, but by the still more important step of admitting this line of study to the crowning honours of a fellowship. The first fellow elected in Cambridge, for attainments in Moral

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* Whewell's book on *Liberal Education* shows that the change actually made in this direction in the recent reorganisation of the Classical Tripos was loudly demanded a generation before; *cf.* also Julius Hare's remarks in his *Life of Sterling*, pp. xii., xiii.

Sciences only, was the senior in the Moral Sciences Tripos of 1863, a member of St. John's. Three other fellowships have since been similarly awarded, and in the case of one or two more it is understood that considerable weight has been attached to distinction in this subject, though it has not been the sole ground of election. Scholarships are also given in St. John's, Trinity and occasionally in Downing for proficiency in this study. Thus, though the pursuit of Philosophy is as yet far from being on a level, in the general estimation of Cambridge, with Mathematics and Classics, it is no longer separated from this position by any definite and impassable interval. Until, however, this level is more nearly reached, it is difficult to say precisely how far the present paucity of the students who follow this pursuit—about twelve or fifteen each year—is due to the rarity of rewards hitherto obtained by it, or to the absence of prestige or of direct professional utility in the knowledge acquired, or to the intrinsic unattractiveness of the studies for most English minds, or to their want of affinity with the traditional habits and tendencies of Cambridge. Probably each of these causes co-operates to a certain extent. For some time after the second, more complete, examination was instituted, there was a want of teaching officially provided in the subjects: but no deficiency now exists in this respect, at least as far as quantity is concerned; as there are, in different colleges taken together, about five lecturers wholly or chiefly employed in this work. These lecturers are not for the most part appointed to teach any special subjects, but generally to prepare students for the Moral Sciences Tripos. For some years, however, a tolerably complete distribution among the lecturers of the subjects of Moral and Political Philosophy, Mental Philosophy, Logic, and Political Economy, has been attained by mutual arrangement: and it seems probable that this distribution will before very long be established on a more recognised and permanent footing.

In this historical sketch I have chiefly paid attention to the place of Philosophy in the university or college examinations and other prescribed exercises. Under the present system of elaborate and careful examinations, by success in which very large pecuniary prizes are obtained, this consideration is naturally prominent. In the Cambridge of 1876 it would be difficult for Aristotle himself to obtain a serious audience of undergraduates, unless his teaching was understood to "pay" in some Tripos. But in the earlier part of the history that I have briefly traced this was not so much the case: and even now, since Philosophy is eminently a subject for mature study, there seems no reason why a school of philosophical thought should not be formed in Cambridge through the mutual communication of disinterested students and the general influence of some eminent teachers, whether officially established or not. In fact, however, since the 17th century, no such phenomenon has presented itself: and the element of personal influence has been conspicuously absent from the development of thought in Cambridge. Since Whewell converted the Professorship of Casuistry into a chair of Moral Philosophy, it has always been held by thinkers of decided intellectual force and productiveness: but it cannot be said that the teaching of any of the series has had any tendency to form a school. Whewell's lectures were at first largely attended; but when his own system of morality began to be developed, the interest seems to have fallen off. Perhaps the peculiar intellectual excellences of John Grote, subtle and balanced criticism, varied and versatile sympathy, were hardly such as qualified him—original as he was—to be the founder of a school. The case of Maurice affords a striking illustration of my remark, as his influence was at one time considerable in Cambridge, where his *History of Moral and Metaphysical Philosophy* found many readers; but it had ceased to be a real force, in the sphere of philosophic thought at least, before he became professor, and all the impressiveness and spiritual charm of his personal presence and conversation failed to revive it. I should be disposed to think that no indigenous thinker, for 150 years, has had an influence in Cambridge at all equal to that recently exercised from a distance, by John Stuart Mill. Hence, whatever is characteristic of philosophy in Cambridge must be referred rather to the general intellectual tendencies produced by her favourite studies and by the peculiar organisation of her academic system, than to any tradition of teaching, or any agreement in opinions due to the mutual influence of persons living in the same place and intent on the same inquiries. Since the time of the Platonists the history of Cambridge shows no philosophical school or sect, and scarcely any philosophical coterie: at least one observes no ideas or manners of thought going about the world which can be definitely traced to such a coterie. Still one may notice different degrees of receptiveness in the Cambridge mind to the thought produced elsewhere: certain departments or aspects of philosophy seem to have more attraction for Cambridge men than others. For example, a training in mathematics and physics is a natural preparation for taking part in methodological controversy. I have already spoken of the work of Herschel and Whewell in this department: and it is not out of place to notice the great literary monument which three Cambridge men have recently raised to Bacon: since nothing that has been written about the *Novum Organum* can be compared for explanatory efficacy with Mr. Ellis's *Introduction*. Again the study of Natural Philosophy disposes the mind to be interested in hypothetical extensions of physical explanations to psychical phenomona: thus we find Hartley in Coleridge's time, and Herbert Spencer at the present day, exercising considerable influence at Cambridge. On the other hand, the university of Newton has been always averse to admit the claims of "Hegel and Schelling who could not understand that Newton went farther than Kepler had gone in physical astronomy, and despised Newton's optical doctrines in comparison with the vague Aristotelian dogmas of Göthe respecting colours" (Whewell on *University Education*). And, apart from the offence given by these scientific vagaries, the preference that the traditional training of Cambridge naturally generates for exactness of method and certainty of results in comparison with breadth and completeness of view is unfavourable to the ambitious constructions of post-Kantian metaphysics. Again, a mathematically trained mind commonly finds much affinity in Political Economy, especially as treated in the abstract deductive manner which has prevailed in England since Ricardo: accordingly this branch of Moral Sciences has found especial favour with Cambridge men. These characteristics appear to some extent in the scheme of the Moral Sciences Tripos: where exceptional stress is laid on Logic (including Methodology) and Political Economy, which are made departments co-ordinate with the larger but vaguer subjects of Mental Philosophy (Psychology and Metaphysics), and Moral and Political Philosophy; and where again the historical study of metaphysics is limited so as to exclude the post-Kantian developments in Germany. But how far these peculiarities are likely to appear in any school of philosophy, that may hereafter be formed at Cambridge, is hard to say: since the general tendencies of thought in England and the influence of any widely read treatises may easily prevail over the bias given by any particular educational system. However, to discuss the *future* of Philosophy in Cambridge is beyond the scope of the present paper. Of all the mistakes that men commit, as a distinguished humourist has observed, "prophecy is the most gratuitous."

HENRY SIDGWICK.

The following is the present scheme of examination for the Moral Sciences Tripos, omitting the fourth head, *Political Economy*.

I. *Moral and Political Philosophy.*—1. The different sources, occasions or determining causes of human action and their mutual relations;

pleasure, pain, desire, aversion and their varieties; will, freedom of will, practical reason; conscience, moral sentiments, moral perception or judgment, moral reasoning; theories of the origin of the moral faculty. 2. The Good or ultimate end of rational action; happiness, right and wrong, moral obligations, moral excellence; rules and sanctions. 3. Exposition and classification of particular duties and virtues. 4. Relation of Ethics to Psychology, Law, Politics, Theology. 5. The general principles of Jurisprudence, civil and penal; rights to property and services, and modes of acquiring them; contracts; rights and obligations attached to different private conditions; theory of punishment. 6. The general principles of Politics; the different functions of government and the modes of their distribution; mutual rights and obligations of governors and governed; general limits of governmental interference. 7. The History of ethical and political opinions.—Books recommended: Plato (*Protag., Gorg., Phileb., Repub.*); Aristotle (*Ethics*); Cicero (*De Fin.*); Hobbes (*Leviath.* cc. 6-11, 13-15); Clarke (*Nat. Religion*, props. 1-4); Shaftesbury (*Inquiry*); Butler (Sermons, 1-3, 5, 8, 11); Smith (*Mor. Sentiments*); Hume (*Prin. of Morals*); Kant (*Metaph. of Ethics*); Paley (*Mor. Phil.*, b. 6); Bentham (*Prin. of Mor.* and *Legislation*, except c. 18, and *Prin. of Civil Code*); Whewell (*System. Morality* and *Hist. of Mor. Phil.*); Mill (*Utilit.* and *Rep. Gov.*); J. Grote (*Exam. of Utilit.*).

II. *Mental Philosophy.*—1. Analysis and classification of mental powers and mental phenomena, and determination of their mutual relations; consciousness, sensation, emotion, volition, perception, memory, imagination, conception, judgment, reasoning. 2. Laws of mental development and association of mental phenomena. 3. Subject, object and their relation in cognition; the origin and extent of knowledge; the criteria of truth and certainty. 4. The Categories or fundamental forms of the object of knowledge, their origin and mutual relations; space, time, substance, quantity, quality, relation, cause and effect. 5. The principal modes of Being and their relations; mind, matter and their different modes or qualities. 6. Physiological concomitants of mental phenomena; organs of sense and nervous system. 7. The History of Metaphysical opinions.—Books recommended: Descartes (*Meth.* and *Meditations*); Locke (*Essay*); Berkeley (*Three Dialogues*); Hume (*Hum. Nature*, bk. 1); Reid (*Intel. Powers*); Kant (*Kritik der reinen Vernunft*); Hamilton (*Metaphysics*); Ferrier (*Institutes*); Bain (*Handbook of Ment. Science*); J. Grote (*Exploratio Philosophica*); Spencer (*Psychology*); Calderwood (*Phil. of the Infinite*).

III. *Logic.*—1. Province of Logic, formal and material. 2. Functions of Language; names and their kinds; definition, division and classification; predicables and categories; scientific nomenclature and terminology; abstraction, conception and generalisation. 3. Propositions and their import; opposition and conversion of propositions. 4. Analysis and laws of Syllogism. 5. The fundamental laws of Thought and their application to logical processes. 6. The nature of the Inductive process; ground of induction; connection between induction and deduction; analogy. 7. Uniformities of nature and their combinations; their analysis and the methods of discovering and proving them; observation and experiment; scientific explanation; the nature and uses of hypothesis. 8. Doctrine of Chance. 9. Error, its nature and causes and the safeguards against it; classification of logical fallacies. 10. Relation of Logic to Psychology, Metaphysics, Grammar; methods of different sciences.—Books recommended: Aldrich (Mansel's ed.); Kant (*Logic*); Whately; Hamilton; Mansel (*Prolegomena*); De Morgan; Boole; Bacon (*Nov. Org.*); Whewell (*Nov. Org. Ren.*); Mill; Venn (*Logic of Chance*).

VIII.—JAMES HINTON.

We have to record with much regret the death of Mr. James Hinton, the author of *Man and his Dwelling Place*, *Life in Nature*, and other philosophical works, and also eminent as an aural surgeon.

Mr. Hinton was born at Reading on November 26th, 1822. His father, the Rev. J. Howard Hinton, was a Baptist minister of considerable influence and reputation. His mother is described by those who knew her as having been a woman of unusual mental gifts and elevated character; and there can be no doubt that her son owed very much to her teaching. At the age of 16 he was placed in business in the east end of London, where the scenes of misery and wickedness, for which his experience of country life had not prepared him, made a deep and lasting impression on his mind, and gave, no doubt, that strong practical, or rather philanthropic, bias which was conspicuous even in his most speculative writings. In the year 1843, at the age of 21, he entered upon the study of medicine, which made as powerful an impression upon him, intellectually, as his previous experiences of life had made morally. Before, however, he settled down in medical practice, he undertook two long voyages, one to China and another to Africa; on the latter of which he was placed in medical charge of a party of free negro labourers sailing from Sierra Leone to Jamaica. This appointment gave him an opportunity long-desired of studying man in a savage state, and for this purpose he underwent the labour of learning one of the African languages; while in Jamaica he was able to study the modifications in the negro character, produced by contact with the white man.

On his return to England he engaged in practice as a surgeon. During the early years of practice he worked much with Mr. Toynbee, the well-known aurist, and thus laid the foundation for his own subsequent skill and eminence. But at the same time the interests of philosophical speculation were never lost sight of; and much of his subsequent life may, indeed, be described as a struggle between the opposing claims of philosophy and practice, which, though not able always to reconcile, he endeavoured to harmonise by giving place to each in turn. At this time he approached philosophy chiefly by the path of physiology, and made numerous observations on organic forms and the influence of physical laws on life, which gave a special direction to his metaphysical speculations.

In 1858 the struggle between medicine and philosophy became too severe to be borne, and he relinquished practice in order to obtain leisure for thinking and writing. Shortly afterwards he published *Man and his Dwelling Place*, the work which contains in the most explicit and detailed form his theory of the Universe. Being at the same time chiefly dependent upon writing for a livelihood, he published some more popular articles on allied topics in the *Cornhill Magazine* and other periodicals, which afterwards formed the basis of his works entitled *Life in Nature*, and *Thoughts on Health*. About this time, also, he wrote *The Mystery of Pain*, the most widely read and popular of his writings; but it was not published till long after.

In 1862 the claims of medicine again got the upper hand, and he went into practice for the second time, confining himself now to the special department of diseases of the ear, which had long engaged his attention. He was shortly afterwards appointed aural surgeon to Guy's Hospital; and later on the sudden death of his friend and teacher, Mr. Toynbee, to whose house and practice he succeeded, placed him in the first rank among English surgeons practising his special branch; while his reputation rapidly spread to the continent of Europe and to America. Mr. Hinton worked very hard at his profession, and was rewarded with a large and lucrative practice; while at the same time he loyally acquitted himself of his duty to medical science by publishing, in a very complete and beautiful form, the results of his large experience. But it would be only bare justice to say that he looked upon practice chiefly as a means to an end—as the means of obtaining that freedom for philosophical pursuits which so many thinkers have longed for and so few have enjoyed.

During the early part of his second professional life he resolutely turned away from philosophy, and even relinquished, though with great difficulty, the habit he had formed of writing down his thoughts as they occurred to him and afterwards transcribing them. About five years before his death, however, encouraged by the advice of the eminent surgeon, Mr. Bowman, he recommenced the habit of writing, and the result is a large quantity of manuscript and printed matter, chiefly treating of Ethics, Sociology, and Art, but little of which, it is feared, exists in a form ready for publication.

In 1874 he again decided on retirement from practice, and resolved on embracing the long looked-for opportunity of devoting himself entirely to philosophical research and exposition. He appeared at that time to be in the fullest vigour of mind and body, and threw himself with much energy into the study of several subjects which professional pursuits had left him no time to do justice to before; while he soon began to take a more prominent position in the literary and philosophical circles of London. His health had nevertheless suffered in some degree from the attempt to combine speculation and practical activity, and in the autumn of 1875 he went out to St. Michael's in the Azores (where he possessed some property), intending to spend the winter there with his family. There he was attacked with inflammation of the brain, and died on December 16th, at Ponta Delgada, in his 54th year.

While disclaiming the attempt to give a precise account of Mr. Hinton's philosophy, and still more the pretension to assign him his place among those whose views have been in any respect similar, we wish to say a few words on his theories as they were related to his personal character and education.

It is evident from his life that the most influential part of his education—in fact, almost the only education beyond ordinary school training which he received—was that which prepared him for the medical profession. Among the medical sciences he fastened with special eagerness upon physiology, and accepted without hesitation what may be regarded as the great lesson which physiology teaches or claims to teach—the unity of Nature. The indissoluble bond between mental and organic life, the entire subordination of organic life to physical laws were regarded by him as inevitable conclusions. To the difficulties of this position he was not in any way blind. He knew very well and felt deeply that it was subordinating what appears higher to what appears lower. He more than knew, he continually dwelt upon and enforced the truth, that the higher aspects of life and the immaterial objects of human thought call forth in us emotions of reverence and love which are not called forth by the spectacle of physical uniformity. He was never weary of dwelling upon the contrast between the dead material universe (*death* being defined as *inertness*) and the life which our spiritual nature demands as the ground of phenomena. Human instincts, he said, were quite right in refusing to admit that the cause of life could be anything not living. The only escape from the difficulty, in his view, was to attribute to the apparently material cause of life the same qualities as life itself; to regard its want of life as only apparent, in short to regard the material universe as the spiritual universe, wrongly perceived as material by some illusion or error of our faculties.

A great part of Mr. Hinton's works is occupied with the discussion of the existence and nature of this illusion, which makes us perceive the universe as material or "dead," when it is really "living." One of his favourite arguments was derived from the history of science, which showed, he thought, that we must inevitably take false views of things before the true views can be established. The impressions of sense have to be corrected into scientific hypotheses, and so the conclusions of science, he urged, would need to be corrected by something higher. His favourite illustration, often repeated in his works, was from the history of astronomy. Our first impression is necessarily that the earth is stationary and the heavens revolve around us. Nature, he used to say, treats us like children, whom we take in our arms and twirl round, trying to make them believe that the room is going round them. But later on we correct our first impressions and learn that the heavens are stationary and that it is we ourselves that are revolving. So the universe appears dead to us; but why should this not be because of some defect, *i.e.*, *deadness*, in ourselves? It is in this conception of a peculiar defect or deadness in man that we chiefly trace the influence of the theology which imbued his mind in early years. The "fallen state" of man or his moral deadness, as spoken of in the New Testament, probably suggested the idea of a fundamental defect in man's faculties. Not that he regarded the New Testament as professing to give any theory of man's perceptions or containing any cosmical philosophy. That quality, however, of human nature which in its moral aspect is there described as deadness, might in its intellectual aspect be the cause of our bluntness or imperfect perception in relation to the world.*

A thinker so much possessed with a desire for human improvement could not fail to consider the question how far this defect in man could be removed or compensated. The solution found appears to depend on an appeal from man's reason to his moral sense, *i.e.*, to "the heart and conscience." To the reason the material universe must appear *dead* or inert, since its action is invariable, but to the spiritual perception it is full of spiritual meaning: invariableness is not a proof of inaction (*i.e.*, inertness or death) to the moral sense, since right action is invariable, as being absolutely conformed to law. "*Why should not the secret of Nature's invariableness be not passiveness, but rightness?*" To this question, implied more often than expressed in many of his works, Mr. Hinton might contend that reason could give no answer, except by the counter-question (to which he himself was equally unprepared with any answer on intellectual grounds): *Why should rightness be the secret of Nature's invariableness?* It is difficult to conceive of argumentative reasons for or against "predicating holiness of Nature, as of man." This the author confesses when he says: "the belief that the invariableness of Nature bespeaks holiness as its cause doubtless involves an appeal to man's moral sense." But, he urges, "the appeal to an inevitable conscious association of right and wrong with true action surely has not less weight than an appeal to a perception of intellectual relations." We are not here concerned to defend or criticise this position, but think it worth while to point out that this definite preference of the deliverances of the moral sense over those of the intellect was closely connected in Mr. Hinton's mind with his strong conviction of the intense importance of moral problems. It was this conviction and not a merely speculative interest which induced him to apply himself with so much energy to solving the riddle of the Universe, and the solution which he required was one that should admit of practical application for the relief of man's estate.

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* In the first edition of *Man and his Dwelling Place*, the moral condition, or "fallen state" of man, was contrasted in its imperfection with the unbroken progress of his intellectual nature; but in the preface to the third edition he repudiated this notion, regarding it as established that "man's moral and intellectual nature are alike, and his moral and intellectual progress strictly parallel; the contrast between them being one of *period*, not of nature or of end." It seems questionable whether this admission might not have ultimately introduced still further modifications into his system, had the author lived to see another edition of his work.

Mr. Hinton was a firm believer in human progress, but looked for the amelioration of society rather to a more completely altruistic rule and practice of conduct (expressed in a little tract called *Others' Needs*), than to intellectual cultivation; to a gradual change in human nature rather than to the machinery of philanthropy.

The chief characteristic of Mr. Hinton's mind was, perhaps, his unhesitating intellectual courage, which led him to accept ungrudgingly all the consequences of any logical conclusion, though he might feel deeply the moral sacrifice involved. With this was joined a singular ardour in the pursuit of truth, and an intensity which is more often devoted by men of his temperament to moral than to intellectual ends. Notwithstanding, his candour and openness of mind were complete; and probably few persons were ready to examine any opinion presented to them with so entire an absence of prejudice. These qualities, combined with freedom from the intellectual prepossessions of any particular school of thought or place of education, gave him in a very high degree the stamp of originality. His conversation never left any doubt that, whether his views were or were not unknown before, they were, at least for him, the fruit of arduous solitary thought, while his mode of statement and illustrations often had a freshness and piquancy peculiarly his own.

His death at a critical period of life, when he had just attained his long-desired speculative freedom, was a painful shock to his friends; nor could any country, least of all our own, well afford to lose so earnest, unencumbered and well-equipped a pioneer in the search for truth.

J. F. PAYNE.

IX.—CRITICAL NOTICES.

Neue Briefe über die Schopenhauer'sche Philosophie, von JULIUS FRAUENSTÄDT. Leipzig, 1876.

THIS work is chiefly apologetical and critical, as the *Letters* of 1854 were chiefly explanatory. At the same time we have here, as the author informs us, the results of a much more complete acquaintance with the philosophy of Schopenhauer than was possible in 1854, at which date the third edition of *Die Welt als Wille und Vorstellung*, and the second edition of the *Parerga und Paralipomena* had not appeared, and the author had not ended his correspondence with Schopenhauer, or come into possession of his voluminous manuscripts. The present letters are accordingly explanatory as well as apologetical and critical; but they do not add much to what we already had in the author's *Introduction* to Schopenhauer's works (1873). Many passages of the *Introduction* appear *verbatim* here. As an expositor of Schopenhauer's views, Frauenstädt is perhaps as successful as could have been expected in the circumstances. He is not quite so easy to follow as Schopenhauer himself. To explain *Die Welt als Wille &c.* in German is about as futile as the attempt would be to put Hume's philosophy into clearer English, and arrange its parts more lucidly than Hume has himself done. A French or English account of Schopenhauer for French or English readers is another thing. Ribot in his excellent little work *La Philosophie de Schopenhauer* expresses this when he says (preface): "A défaut d' une traduction qui seule en donnerait une idée juste, on a essayé du moins de lui conserver son originalité en le laissant parler presque toujours lui-même." There are few more extraordinary facts in the history of literature than that in Germany so brilliant a writer as Schopenhauer could not speak for himself, and that Frauenstädt became the means of introducing him to his countrymen so late as the year 1854. Schopenhauer was too imaginative and many-sided to be merely a metaphysician. His so-called metaphysical system was little more than the literary form which he gave to many true and original positions in science, ethics and æsthetics. Can one of the reasons of his tardy recognition have been that the German public are slow in appreciating any one who is neither a pronounced metaphysician nor a professed specialist? At any rate v. Hartmann, who has brought out Schopenhauer's metaphysical system in hard lines and possesses none of his master's suggestiveness and literary power, has obtained immediate and wide-spread recognition.

The principal object of the work before us, so far as it is not a reply to critics, is to explain away the survivals of Kantian dualism in Schopenhauer by exhibiting their inconsistency with his scientific monism. Here we think Frauenstädt seizes correctly Schopenhauer's position. It is true, as he says in his preface, that the corrections (in a monistic sense) which Schopenhauer's philosophy requires are almost always to be found actually made by Schopenhauer himself in some part of his works; at the same time, Frauenstädt has the lexicographer's merit of having collected the passages. The compilation of the *Schopenhauer-lexicon* has evidently done a good deal for his appreciation of Schopenhauer's true position. He sees with considerable clearness that Schopenhauer is not a metaphysician, but a man of science. Any unprejudiced person, he remarks (*Letter* 2), reading Schopenhauer feels that he is in contact not with cobwebs of the brain, but with concrete facts. Hence the powerful impression which Schopenhauer makes, notwithstanding his occasional lapses into Scholasticism. Like Locke he starts from sense, and takes great pains to guard against the abuse of abstract terms which lend themselves to several different meanings; *e.g.* he distinguishes four different meanings of "Sufficient Reason," in his work *Ueber die vierfache Wurzel des Satzes vom Zureichenden Grunde;* and three kinds of "Freedom" in *Die beiden Grundprobleme der Ethik.* But Philosophy is concerned only with *what* the world is, not with its *whence*, *whither*, and *wherefore.* These latter questions move in the region of *Erscheinung*, and of the law of causality. Have we not here dualism, Frauenstädt asks—*Erscheinung* on the one side, and *Ding an Sich* on the other? And is not the use of the law of causality thus excluded from philosophy? In answer to this question, which affects so seriously Schopenhauer's position as a man of science, Frauenstädt shows that *Erscheinung* and *Ding an Sich* are not mutually exclusive in Schopenhauer's, as in Kant's, view, but that the latter is immanent in the former. It is by looking at the *Erscheinung* that we grasp the *Ding an Sich.* The forms of *Erscheinung*—Space, Time, and Causality—are not alien to the *Ding an Sich.* The different grades of *Erscheinung* are not purely ideal, but represent real differences in the *Ding an Sich*, or Will which is objectified. All that is *à posteriori* in a thing which we perceive with our senses belongs to it as *Ding an Sich*—as Will; whereas whatever can be determined *à priori* is pure *Erscheinung*, and belongs entirely to the region of *Vorstellung.* Thus in a letter to himself, quoted by Frauenstädt (*Letter* 20), Schopenhauer says that we cannot conclude either from the *à priori* or from the *à posteriori* qualities of an object that it really possesses such qualities. The objective rose cannot be said to be either red or yellow. But the fact that one rose is red and another yellow points to an objective difference. In the first edition of *Die Welt als Wille &c.* Schopenhauer was still too much under the influence of Kant to adopt this monistic view, maintaining that the differences of things are purely ideal. But in the later editions and in the *Parerga* Frauenstädt shows that he no longer adhered to the dualism of *Wille* and *Vorstellung*. One of the most successful parts, we think, of Frauenstädt's present series is where he shows (*Letters* 7 and 8) from Schopenhauer's own principles and even statements that *Vorstellung* must be generalised to the same extent as *Wille*, not confined to cerebral function. Not only Will, but also Causality is essentially the same throughout nature. A mechanical impact, the sensibility of plants, and a motive in consciousness do not differ essentially. This is the fundamental thought of the first part of the treatise *Die beiden Grundprobleme der Ethik* (viz. *Freiheit des Willens*). According to their constitution (*Wille*) objects are acted upon differently. But the force acting is identical, whether it appear as an impact, an irritation, or a motive in consciousness. In accordance with this doctrine of the identity of Causation throughout nature, Frauenstädt generalises *Vorstellung*, using it to denote the fact that an object is acted upon in a way peculiar to itself by external forces. Plants do not *see* the sun as we do, but in their own peculiar way they divine its presence—are affected by it. This is their *Vorstellung*. Our knowledge of natural objects, organic as well as inorganic, is derived from our experience of their *reactions;* this is the important doctrine implied in Schopenhauer's later view of the relation between *Wille* and *Vorstellung*, and his theory of the identity of Causation throughout nature. How do objects *behave?* How do they act upon one another and upon us? Our experience of their behaviour or reactions is not a false show; for they behave according to their several real natures; and our different perceptions stand for real differences in the ways in which objects behave. Thus Frauenstädt (*Letter* 20) shows that Schopenhauer held views identical with those of Helmholtz on the subject of sense-perception—viz. that the qualities perceived by us are not *copies* of objective qualities existing independently, but only the results of the action of external forces upon our specially constituted organs of sense—therefore mere *signs*. To speak of a colour existing externally is to employ a relative conception absolutely. Externally there exist certain forces; it is only when these act upon a retina that colour comes into existence. But the different colours of which we are conscious point to real external differences of which we know nothing more than that they are not differences of colour. It is evident from Schopenhauer's position on this question that he is no dualist but occupies the monistic ground of modern scientific psychology. As he says (*Welt als Wille &c.* i. p. 40): "Our point of departure is neither Object nor Subject, but *Vorstellung*, as being the primary fact of consciousness which exhibits as its most essential law that of bipartition into Object and Subject." Schopenhauer here indicates the point from which scientific psychology must necessarily start—the concrete mental impression, which, when vivid and associated with other vivid impressions, is what we call the *external world*, and when faint, and connected with other faint impressions, what we call *ourselves*. Schopenhauer's position is exactly that of Hume, and that from which Wundt starts in his eighteenth lecture *Ueber die Menschen- u. Thier-Seele*, in which he traces the manner in which the ego and the external world have been differentiated out of impressions which originally belonged to neither.

One of the most successful of the present *Letters* is the thirty-first, where Schopenhauer's teleology is discussed. Schopenhauer traces purpose in nature; but it is not intelligent purpose. Is this not a contradiction in terms? asks Professor Friedrich Harms. In reply, Frauenstädt refers him to Schopenhauer's explanation of the organising processes of nature in general, by means of the instinct of animals. In Instinct nature gives us an expository commentary on her unintelligent realisation of purpose in her various productions. Animals make elaborate preparations for coming events of which they have no knowledge. Schopenhauer's position then is that nature realises purpose, but without intelligence. Frauenstädt admits that the source of the purposive organising process lies deeper than the region of intelligence—viz. in the ultimate nature of the matter organised, but he does not admit that this process can begin without intelligence. He then refers to the correction which he has already deduced from Schopenhauer's own principles, by which Perception, instead of being confined to the grade of animal life, is traced in all the grades of nature in inseparable connection with Will. Wherever Will is moved by an external force, this force must be *perceived* in a certain way. An external agency which is not perceived cannot move Will. Perception, or as we may otherwise express it, discrimination of difference is implied whenever the condition of a body, inorganic or organic, is modified by an external agency. Will and Perception—the original force and the interferences with which it meets—may be logically separated; but never exist actually apart. In his work *Ueber den Willen in der Natur*, Schopenhauer advances a view which does not differ materially from the theory of Natural Selection, and which shows what he means by purpose in nature. The organisation of an animal, he says, stands to its environment in the same relation in which a voluntary act stands to its motive. The shape of the ant-eater is a manifestation which has the ants for its motive (p. 40). Frauenstädt adds—"The tendency towards life may in itself be blind and unintelligent; but the external circumstances and relations in correspondence with which this tendency manifests itself in the organising processes, and to which it adapts itself, must nevertheless in a manner be perceived by it." We have evidently here the two factors—Heredity and Adaptation which determine every organic form, or as Haeckel, (*Generelle Morphologie*, i. p. 153) in generalising them to include the forces at work in the formation of crystals, names them, the internal and the external formative forces; the former being the sum of the moving forces manifested in all the molecules which compose the individual crystal or cell, the latter the sum of the forces external to the individual which interfere with its internal forces. It will thus be seen that Frauenstädt's generalisation of *Vorstellung* has much scientific significance, although it may perhaps be thought to take undue liberty with the word. But his identification (*Letter* 23) of *Kraft* and *Ursache*, which amounts to the same thing as the generalisation of *Vorstellung*, has not this objection. Schopenhauer (*Welt als Wille &c.* ii. p. 51) expresses himself as if *Kraft* and *Ursache* were essentially distinct, the former "giving the latter its causality." This amounts to saying that the law of gravitation exists independently of all gravitating bodies, and the vital force independently of actual organisms. Frauenstädt shows principally by referring to other statements of Schopenhauer himself that there can be no such separation in reality of the two factors, although it is convenient logically to distinguish between the inner moment (*Kraft*, *Wille*, Darwin's Heredity) and the outer moment (*Ursache*, *Vorstellung* as generalised by Frauenstädt, Darwin's Adaptation).

The Will or organising force is not something absolutely distinct from the matter organised and the external forces of the environment. It is not extrinsic and supernatural. It is a force in exactly the same sense as the forces indicated by the terms Matter and Environment. There cannot exist an organism which has not been affected by its environment; this is the truth in Frauenstädt's position that *Vorstellung* is inseparably connected with *Wille* in the lowest as well as in the highest grades of nature. Frauenstädt's treatment of Schopenhauer's *Wille* and *Vorstellung* thus conducts him to scientific results, because he follows his master's concrete method. But v. Hartmann treats these words as representing abstract notions to be anyhow manipulated, and thus arrives at a symmetrical co-ordination of *Wille* and *die absolut unbewusste Vorstellung*, which enables him to explain Instinct as *clairvoyance!* (*Phil. des Unbewussten*, p. 90.) As Frauenstädt remarks (*Letter* 8), Schopenhauer's system owing to the subordination of *Vorstellung* to *Wille* is much more monistic than v. Hartmann's, which owing to its co-ordination of the two relapses into dualism.

Frauenstädt (*Letter* 17) finds Schopenhauer's adherence to the Kantian doctrine of the ideality of Space, Time and Causality inconsistent with his scientific monism. He quotes a passage (*Welt als W. &c.* i., p. 152), in which Schopenhauer maintains that the plurality of things in space and time does not affect Will, which is one and indivisible. There is not a greater part of it in a man than in a stone, for the relation of whole and part belongs exclusively to Space, and has no meaning when this form of intuition is absent. To this doctrine Frauenstädt replies from Schopenhauer's own principles that Space, Time and Causality must be regarded as affecting Will or the *Ding an Sich*, because the differences in our sensations point to real external differences, of which they are signs although not copies. Now if the differences are real, then *eo ipso* Time, Space and Causality are also real—*i.e.* attributes of the *Ding an Sich;* for where there are differences there is plurality—therefore sequence and co-existence (Time and Space)—and also Causality, since the real differences produce corresponding differences in our sensations (*Letter* 21). Nor is the doctrine of the ideality of Space, Time and Causality reconcilable with Schopenhauer's *Ideen* or various natural forces, which he regards as the immediate objectifications of Will. According to Schopenhauer's view, which is identical with the nebular hypothesis of Kant and Laplace, nature ascends from lower to higher stages (*Ideen*) without any break in continuity—*Natura non facit saltus.* The later and higher manifestations are conditioned by the earlier and lower, which they use up or develop. Hence Space, Time, Plurality and Causality cannot be merely subjective forms, but must have objective reality, since they are implied in the plurality of the ideas or natural forces which are the real manifestations of Will. Thus Frauenstädt removes the last trace of Kantian dualism and idealism from the scientific system of Schopenhauer, by insisting on the far-reaching importance of his doctrine that *Erscheinung* or *Vorstellung* is real, though not primarily, yet secondarily or in a derivative way. There is a point, however, which Frauenstädt has not noticed in the letters before us—viz. Schopenhauer's method in geometry and arithmetic, which was suggested to him by Kant, and does not look like an abandonment of the Kantian doctrine of the subjectivity of Space and Time. In the *Vierfache Wurzel* (ch. 6, on the third *principium*, viz. that *rationis sufficientis essendi*), he says that insight into the nexus or mutual determinations of the parts of Space cannot be gained by means of abstract reasoning (as in Euclid's demonstrations), but only by *looking at figures.* It is this alone which gives conviction, and to this at last (in the axioms, &c.) we refer our logical proofs. But Euclid's method, he says (*Welt als Wille &c.*, i. p. 85), was necessarily dominant until Kant distinguished pure *à priori* intuition from empirical intuition. When this distinction had been made—and he enlarges on its importance, and speaks of our intuitions of Space and Time as entirely independent of all sensuous impressions,—then it became evident that Euclid's logical method is a useless round-about way—a crutch for sound legs. When we look at a triangle with one side produced, and *see* that the exterior angle is greater than either of the opposite interior angles, we form a synthetic judgment *à priori.* Here certainly Schopenhauer cannot be said to have given up the Kantian position.

In his 22nd *Letter* Frauenstädt touches the weak point in Schopenhauer's system, where he becomes a metaphysician—viz., his doctrine of the annihilation of Will. In holding this doctrine, Schopenhauer is in a transcendental region—he puts himself outside of the world of experience. Will or Force is no longer regarded absolutely, but in relation to something else—viz. to its annihilation. He is thus a metaphysician *à parte post*, which is no better than being one *à parte ante*. This conception of the annihilation of Will has no logical—of course it has no real—connection with his scientific system. Its origin is apparently emotional. It is a refuge which his pessimism has invented. Frauenstädt traces his pessimism to his doctrine of egoism as the necessary result of the *principium individuationis*. But how the Universal Will comes to be so blinded in the individual as to hold for unreal its manifestations in all other individuals, Frauenstädt cannot understand, and Schopenhauer does not satisfactorily explain (*Letter* 43). Frauenstädt's attitude to Schopenhauer's pessimism shows, we think, much good sense. He cannot understand it. It has no connection with Schopenhauer's system, and indeed, as Frauenstädt points out (*Letter* 45), is at variance with his Ethic which founds upon Pity, and recognises the duty of making others happier. The contrast between v. Hartmann and Frauenstädt comes out very clearly in their respective attributes towards Schopenhauer's pessimism. V. Hartmann develops it extravagantly because it is an extravagant view to begin with; but Frauenstädt leaves it alone because it has no scientific significance. V. Hartmann treats all Schopenhauer's philosophical ideas simply as abstractions, and develops out of them, without regard to the facts of experience, a sham science to fit into the forms of his elaborate metaphysical system. Frauenstädt, on the other hand, rather desystematises Schopenhauer.

There is no point on which Schopenhauer is so absolutely at one with Kant, as on that of the Freedom of the Will, as treated of in the first part of *Die beiden Grundprobleme*. Like Kant he places the *homo phaenomenon* in the region of causality, and regards the *homo noumenon* as the source of freedom. Actions follow their motives necessarily; but the agent has a sense of responsibility and freedom, because he knows that the contrary of a bad action would have happened had he been a different man. Freedom is not to be looked for in *operari* but in *esse* (p. 93, &c.). In his 37th—40th *Letters* Frauenstädt has some extremely good criticisms to offer on this theory, and arrives, we think, at a sound conclusion. *Necessary* means *caused*, on Schopenhauer's own principles. But the intelligible character of a man is caused by the Universal Will. Therefore the Universal Will, not the individual character, is responsible. Freedom, which means independence of causation, is to be found no more in a man's *esse* than in his *operari*. Schopenhauer is not entitled to separate man from nature in this way. It is a piece of dualism inconsistent with his monism. Nor after all is it a less contradictory thought that the Universal Will itself might have been other than it is. The conception of Freedom in *esse* is in short unmeaning. Being responsible has nothing to do with the possibility of having been born with a different character. There is no such possibility. Wherever a man is socially disliked he is in a sense responsible; and we often dislike people for disagreeable peculiarities of body or mind which are congenital. Responsible means Punishable. The only effective punishment of congenital vice is death, and this has sometimes to be resorted to. Tigers and other dangerous wild beasts are responsible in this wide sense. They are not responsible because they might have been different, but because they may be killed. But where punishment acts as a motive—*i.e.* becomes the necessary cause of actions tending to its avoidance, we are responsible in the strict sense, *i.e.* punishable by the Law for actions the opposites of which are possible. It is only because Law can punish us that we are strictly speaking responsible. If no overmastering external agency forces us to disobey the Law, we are free when we disobey it. Freedom in *esse* is nonsense, because motives cannot alter our *esse* as they can our *operari*. Kant and Schopenhauer have in short placed Freedom in the very stronghold of Necessity. Frauenstädt has done good service in directing attention to this. He is singularly free from the trammels of Schopenhauer's system, for there can be no doubt that the place which his system assigns to Will, was the real cause of Schopenhauer's doctrine of Freedom in *esse*, or Responsibility out of all relation.

In the second part of *Die beiden Grundprobleme*, viz. *die Grundlage der Moral*, Schopenhauer breaks with Kant because he assumes an *imperative* or *ought* out of all relation to an external Law, holding out motives to obedience. He puts Kant in this dilemma. *Duty* and *ought* are essentially relative conceptions, and have no meaning except in connection with punishment or reward. But a relative *ought* cannot be an ethical principle, because all that is done from fear of punishment or hope of reward is done from egoistic motives, and can have no moral worth. It is strange that he should have failed to apply a similar criticism to Kant's doctrine of Freedom.

In his 32nd and 33rd Letters Frauenstädt speaks of Schopenhauer's Æsthetic, and here, we think, he fails in appreciation. He remarks, sensibly perhaps, that the freedom from Will which Schopenhauer finds in the æsthetic contemplation of the Ideas can be nothing more than a *relative* freedom, because æsthetic contemplation is attended by pleasure, and where there is pleasure there is Will. The Will from which æsthetic contemplation frees us is egoistic will; but it raises us to the level of a higher and non-egoistic pleasure and manifestation of Will. A special form of Will corresponds to the æsthetic attitude of the Intellect. Schopenhauer was wrong when he maintained that in æsthetic contemplation we are entirely free from Will. He was also wrong when he maintained that the objects of æsthetic contemplation—the Ideas—are out of relation to Space, Time and Causality. When we derive pleasure from an object of art, Frauenstädt maintains we must necessarily localise it, like all other objects, in Space and Time, and cannot neglect its causal connections. This is of course true, but to say it displays want of literary tact. Surely Schopenhauer's theory of fine-art, being like all great theories of fine-art, itself in a manner a work of fine-art, deserves to be approached in a literary spirit. Schopenhauer's æsthetic contemplation is a *momentary* ecstacy which may be *described* as transcending Time, Space and Causality. A purely literary description of this sort is surely justified by the acknowledged difference between the feeling which bursts in upon us with the first sight of a beautiful landscape, and the train of thoughts which passes through our minds when we try to reconstruct its geological history. Again, Frauenstädt takes exception to Schopenhauer's Æsthetic because it supposes eternal unchangeable Ideas. This theory of art, he says, does not harmonise either with Schopenhauer's general doctrine, which is essentially a doctrine of evolution, or with the Darwinian theory of the Origin of Species. But it is surely unnecessary to inquire whether a theory of Art harmonises with the Darwinian or any other theory of the Origin of Species.

We have said enough to indicate what seems to us to be the distinctive merit of Frauenstädt's new work—that it exhibits Schopenhauer in his essential character of a man who, from considerable scientific attainments, contributed much that is sound and original to the literature of the scientific imagination. It is fortunate, we think, that attention has been directed to Schopenhauer's best points by such an able and sensible work as the present at a time when, we fear, many are turning to the unsuggestive pages of v. Hartmann.

J. A. Stewart.

Die Sprachwissenschaft nach ihrem Zusammenhange mit Logik, menschlicher Geistesbildung und Philosophie, von Conrad Hermann, Prof. Leipzig, Teubner, 1875.

Professor Hermann has taken new ground in this important work, but it would be premature to attempt to assign its precise value. It is obvious even to the casual reader that an extension of the philosophical sphere is here suggested; but the new territory has not been fully occupied. A careful consideration of the results of the author's labours will reveal that he has rather sketched in outline the nature of "a new departure" in philosophy than made good the progress of philosophy in the special direction indicated. Therefore we say we are not in a position to estimate with anything like finality the exact worth of this contribution to philosophical thought. All we can do here is to show what the author attempts, and what he hopes may yet be accomplished. That will be found to be of very great moment, both for philosophy and psychology, whether or not the claim be made out that the science of logic has been placed on a new basis. Stated broadly, his position is that philosophy and philology are closely bound together through thought, which is the middle term or connecting nerve of their union, so that the two sciences represent complementary sides in the development of the thinking principle.

In elucidating this position the author first deals with the science of language under its two divisions of Philology and Glossology—the former of which is occupied with the more subjective side or the spiritual contents of language, the λόγος, or the thought which is expressed in outward forms or symbols; while the latter refers to the objective sensuous forms of speech as the work of the γλῶσσα. Philology, then, includes the various expressions of spiritual or intellectual thought in the languages and literatures of nations, as the manifestations of the spirit or genius of language rooted in the intelligence of man. Glossology, again, is confined to the examination of the sensuous or linguistic elements themselves; and it is only in the higher unity of the two that language can be rightly regarded as the mode of giving objective form to the inner conceptions of the mind. Philology seeks to ascertain the fundamental forms and most general expressions of thought which recur in the grammars of all languages, and investigates the laws of the development of language as illustrated by literatures, and thus on its objective side becomes a means of throwing light on historical science. But the historical treatment of language in comparative philology, which has so much become the prevalent mode of dealing with it that it is viewed as a branch of natural science, is only one half of the science. Besides tracing the way in which language has come to be what it now is, as a historical or natural product, it is necessary to inquire into the actual contents or the *what* of Language, so far as it is the revelation or outward expression of the inner principles of the human intelligence. It has been one of the most misleading errors of modern times to deal with thought and language as if they were mutually independent of and altogether distinct and separate from each other. Modern philosophy has strayed into all sorts of mistakes by adopting this point of view, and treating language in consequence as a kind of arbitrary invention of the understanding, whereas it is organically connected with the thought of which it is the expression—not in a relation of mechanical cause and effect, but in the higher relation of being the artistic product of the free exercise of man's intellectual activity; as in short an organic product of the Reason. The entire system of languages has grown out of the free activity of living speech which was based upon the nature of thought. Thought *per se*, or what is called pure thought, is therefore regarded by Hermann as a fiction, the most abstract logical thinking having been conditioned by and due to the development of language; for language is rather the *prius* of thought than the reverse. Not that Hermann is bound to deny the possibility of rudimentary conceptions apart from language, which, as Lotze shows in his *Logik*, must exist in the case of the deaf and dumb; but the higher, more abstract, and more complex exercises of thought are impossible apart from language.

Having traced generally the organic connections of Thought and Language, and briefly exhibited the past relations of linguistic science to philosophy, Hermann goes on next to deal with the theory of thought or the position of philosophy as the result of the development of the history of philosophy. The true scientific standpoint for the knowledge of all the interests of human life is the historical; but care must be taken that the historical view—

which regards all things in the relation of cause and effect, like natural science—does not obscure or conceal what may be called the dynamical view. All language is an attempt to give expression to the absolute or complete thought of the pure idea, which is the assumed thought that represents the actual reality, the real essence of what objectively is. It is not only the forms of language which vary with different peoples in different circumstances — the contents of the thought in each case have their own distinct characteristics. What thought aims at in its efforts to comprehend being is to transfer the contents of real being, or what is in the objectivity of external things, into its own forms, so that the two shall harmonise or coincide. Ideal thinking as Logic and the real thinking of Language are in one sense different; for the former is objective and the latter is always subjective, and the aim or end must be to determine how far the subjective thought expressed in Language corresponds with the absolute and objective thought of Logic. The external world is an existence in space; but the order or connection of our subjective ideas is conditioned by time, and the whole process of the activity of thought may be regarded as a transfer of the contents of things existing in space to the simpler form of connection in time; that is, succession. This mode of apprehension forms the foundation or principle for a new kind of scientific criticism of the phenomena of language. We endeavour (says Hermann) to lay the foundations of a new advance of the science of language from the standpoint of the principle of thought; and this direction or tendency is described as the ideal-logical, or conceptual-philosophical (*begrifflich-philosophische*), mode of viewing Language.

The Logic of Aristotle is the foundation of modern science. In the objective Logic of Hegel for the first time we have a distinct advance. The Hegelian Logic is not, like the Aristotelian, an exposition of the abstract forms and laws of thought, but an attempt to expound in systematic order the "material contents" or the necessary rhythm of thought in the development of its own fundamental ideas. Hegel failed to see, or refused to admit, the essential relations of thought and language, and his Logic is one-sided and purely ideal; but it marks a substantial advance in the great work of seeking to harmonise thought and being which is the end of all philosophy. Hegel regarded all history and all events as a development, or a becoming, according to fixed laws, and his philosophy seeks to exhibit the order of the connection of things according to a general but purely formal principle. Hermann accepts the formal principle, but finds it necessary to supplement it with a material principle. He applies to the explanation of history both the principle of final and of physical causes; and his view is teleological throughout. The natural science of the present day is one-sided because it rejects the teleological principle in explaining phenomena and is satisfied with secondary or physical causes. The teleological principle implies a definite idealism, and this ideal element is indispensable; but it is held in connection with a principle of Realism, and the general designation of Hermann's point of view is "Ideal-Realism." Hermann's chapters in this work on the Logic and Dialectic of Hegel are luminous and valuable. His criticism of Hegelian defects seems to us to be as true as it is acute. But though the Hegelian dialectic rests on a principle that cannot be maintained, and by its one-sided use of the idea of development, or becoming, as determining our entire conception of the world is misleading, it offers points of contact for a more complete (realistic) exhibition of the whole doctrine of thought. Supplemented by a philosophical treatment of thought as represented by language which is its manifestation, and through which alone we shall attain to true views of the organism of ideas and logical forms of thought, philosophy accepts the Hegelian Logic and seeks to bring it into harmony with reality. Philology is found to be an intellectual or logical science, and the true principle of its treatment must be that of the logico-rational explanation of language. Only thus shall we escape the danger of merging philology in glossology, and thereby depriving philosophy of the benefits it is entitled to look for from both.

There is much in Hermann's work which must for the present be regarded as only assertion. The demonstration of his doctrine is yet to come; but in bringing into clear light the ideal and real sides of thought in Logic and Language, by showing their intimate organic union, and by connecting the history of philosophy with philosophy in its true nature, he has paved the way towards an advance in philosophical thought. Thought is the inmost nerve and centre of gravity for the scientific truth of philosophy; but thought must not be merely viewed ideally but in its empirical relations as represented by Language. Only therefore through the union of philosophy and philology is any substantial advance possible. Philosophy must appropriate the results of the science of Language, and will find there the elements and means required for a scientifically ordered treatment of the whole principle of thought. We hope Prof. Hermann will proceed with the work he has begun; and that we shall not have long to wait for a further and fuller exposition of the principles on which he founds his synthesis of philosophy and philology, or what is even more important—for the analysis of the philosophical nature of language as representing the organism of the free activity of thought. J. Scot Henderson.

X.—REPORTS.

I. Education of Laura Bridgman.

The last (43rd) Annual Report of the Perkins Institution for the Blind in Boston, Massachusetts, contains a somewhat circumstantial description by Dr. S. G. Howe of his mode of educating the celebrated blind deaf-mute Laura Bridgman. The case is so interesting from the psychological point of view that the statement is here quoted nearly in full:—

"I found in a little village in the mountains a pretty and lively girl, about six years old, who was totally blind and deaf, and who had only a very indistinct sense of smell; so indistinct that, unlike other deaf-mutes, who are continually smelling at things, she did not smell even at her food. This sense afterwards developed itself a little, but was never much used or relied upon by her. She lost her senses by scarlet fever so early that she has no recollection of any exercise of them. Her father was a substantial farmer; and his wife a very intelligent woman. My proposal to try to give regular instruction to the child seemed to be a very wild one. But the mother, a woman of considerable natural ability, animated by warm love for her daughter, eagerly assented to my proposal, and in a few days little Laura was brought to my house in Boston, and placed under regular instruction by lessons improvised for the occasion.

"I shall not here anticipate what I intend to write about her further than to say that I required her by signs, which she soon came to understand, to devote several hours a day to learning to use her hands, and to acquiring command of her muscles and limbs. But my principal aim and hope was to enable her to recognise the twenty-six signs which represent the letters of the alphabet. She submitted to the process patiently, though without understanding its purpose.

"I will here give a rough sketch of the means which I contrived for her mental development. I first selected short monosyllables, so that the signs which she was to learn might be as simple as possible. I placed before her, on the table, a pen and a pin, and then, making her take notice of the fingers of one of my hands, I placed them in the three positions used as signs of the manual alphabet of deaf-mutes, for the letters *p e n*, and made her feel them, over and over again, many times, so that they might be associated together in her mind. I did the same with the pin, and repeated it scores of times. She at last perceived that the signs were complex, and that the middle sign of the one, that is the *e*, differed from the middle sign of the other, that is *i*. This was the first step gained. This process was repeated over and over, hundreds of times, until, finally, the association was established in her mind between the sign composed of three signs, and expressed by three positions of my fingers, and the article itself, so that when I held up the pen to her she would herself make the complex sign; and when I made the complex sign on my fingers she would triumphantly pick up the pen, and hold it up before me, as much as to say 'This is what you want.'

"Then the same process was gone over with the pin, until the association in her mind was intimate and complete between the two articles and the complex positions of the fingers. She had thus learned two arbitrary signs, or the names of the two different things. She seemed conscious of having understood and done what I wanted, for she smiled, while I exclaimed, inwardly and triumphantly, '*εὕρηκα! εὕρηκα!*' I now felt that the first step had been taken successfully, and that this was the only really difficult one, because by continuing the same process by which she had become enabled to distinguish two articles, by two arbitrary signs, she would go on and learn to express in signs two thousand, and finally, the forty and odd thousand signs or words in the English language.

"Having learned that the sign for these two articles, *pin* and *pen*, was composed of three signs, she would perceive that in order to learn the names for other things she had got to learn other signs. I went on with monosyllables, as being the simplest, and she learned gradually one sign of a letter from another, until she knew all the arbitrary, tangible twenty-six letters of the alphabet, and how to arrange them to express various objects: knife, fork, spoon, thread, and the like. Afterwards she learned the names of the ten numerals or digits, of the punctuation and exclamation and interrogation points; some forty-six in all. With these she could express the name of everything, of every thought, of every feeling, and all the numberless shades thereof. She had thus got the '*open sesame*' to the whole treasury of the English language. She seemed aware of the importance of the process; and worked at it earnestly and incessantly, taking up various articles, and inquiring by gestures and looks what signs upon her fingers were to be put together in order to express their names. At times she was too radiant with delight to be able to conceal her emotions.

"It sometimes occurred to me that she was like a person alone and helpless in a deep, dark, still pit, and that I was letting down a cord and dangling it about, in hopes she might find it; and that finally she would seize it by chance, and, clinging to it, be drawn up by it into the light of day, and into human society. And it did so happen; and thus she, instinctively and unconsciously, aided in her happy deliverance. After she had mastered the system of arbitrary signs, made by the various positions of the fingers used by deaf-mutes and called dactylology, the next process was to teach her to recognise the same signs in types, with the outlines of the letters embossed upon their ends. Thus with types, two embossed with *p*, two with *n*, one with *e*, and another with *i*, she could, by setting them side by side in the quadrilateral holes in the blind man's slate, make the sign of *pen* or *pin*, as she wished; and so with other signs.

"The next process was to teach her that when a certain kind of paper was pressed firmly upon the ends of these types, held close together and side by side, there would be a tangible sign on the reverse of the other, as *pin* or *pen*, according to the position of the three types; that she could feel this paper, distinguish the letters, and so read; and that these signs could be varied and multiplied, and put together in order, and so make a book.

"Then she was provided with types having the outlines of the letters made with projecting pin-points, which, when pressed upon stiffened paper, pierced through, and left a dotted outline of each letter upon the reversed side. This she soon ascertained could serve for writing down whatever she desired, and be read by herself; and also could be addressed to friends, and sent to them by mail.

"She was also taught to write letters and words with a lead pencil, by the aid of the French writing-board . . . . .

"It would occupy more space than can be spared here to explain how, after she had learned the names of substantive nouns, or names of things in the concrete, she came to understand words expressive of the various material or moral qualities thereof. The process was slow and difficult, but I was so aided by her native shrewdness and her love for learning new things that success followed. For instance, she knew that some girls and women of her acquaintance were very sweet and amiable in their tempers, because they treated her so kindly, and caressed her so constantly. She knew, also, that others were quite different in their deportment; that they avoided or repelled her, and were abrupt in their motions and gestures while in contact with her; and might be called, therefore, sour in their tempers. By a little skill she was made to associate in her mind the first person with a sweet apple, the other with a sour apple, and so there was a sign for a moral quality. This is a rough illustration; but it is hard to explain the process by which any children come to understand the names of things in the abstract, or moral qualities. Success came of faith, and patience, and reliance upon her having the native desire and capacity for acquiring a complete arbitrary language, which desire had now become quickened to a passion for learning new signs. Moreover, I was greatly aided from the start by young lady teachers, who became in love with the work, and devoted themselves to it with saintly patience and perseverance. Then great assistance was given by the blind pupils, many of whom learned the manual alphabet and took every opportunity of using it and conversing with Laura. Thus early in the process the material and moral advantages of language began to show themselves. Without it the girls could only manifest their interest in Laura and their affection for her as one does with a baby, by caresses, sugar-plums and other gifts, and by leading her up and down, and helping her in various ways. With it they began human intercourse through regular language.

"And so she went on, diligently and happily, for a score or more of years, until at last she acquired a large vocabulary of words, and could converse readily and rapidly with all deaf-mutes, and all persons who could use these signs. She could read printed books readily and easily, finding out for herself, for instance, any chapter and verse of Scripture. She could also read letters from her friends in pricked type, or by the Braille system of points. She could also write down her own thoughts and experiences in a diary; and could keep up a correspondence with her family and friends by sending to them letters in pencil, and receiving their answers either in pricked letters, which she could read by the touch, or letters written with ink or pencil, which could be read to her by some confidential seeing person.

"Thus was she happily brought at last into easy and free relations with her fellow creatures; and made one of the human family . . . . .

"During many years Laura passed most of her time in exercises such as those above described; new ones being devised as she proceeded. She spent as many hours daily in her studies and mental work as was consistent with her health; but all the rest of the time was given to gymnastics, or learning to handle domestic implements, as the broom, the dish-cloth, and the needle; to sew, to knit, to braid, to occupy herself in simple house-work, sweeping floors, dusting furniture, making beds; finally, to more difficult kinds of work, as crochet-work and the like.

"In all these things she succeeded so well, that she is now capable of earning a livelihood as assistant to any kind and intelligent housekeeper who would accommodate her work to Laura's ways.

"The method of instruction was, of course, novel, and the process long and tedious, extending over several years, until she came to be able to read and understand books in raised letters; to mark down variously shaped signs upon a grooved paper, and so write letters legible by the eye; to attain a pretty wide command of the words of the English language, to spell them out rapidly and correctly, and so express her thoughts in visible signs and in good English. To make all this fully understood by specimens of her style as she used the language of childhood, will require a good-sized volume; and I confine myself now merely to saying that in the course of twenty years she was enabled to do it all. She has attained such facility for talking in the manual alphabet, that I regret that I did not try also to teach her to speak by the vocal organs, or regular speech. The few words which she has learned to pronounce audibly prove that she could have learned more."

It is stated also that Laura is now forty-four years old. "She has a feminine delight in personal ornamentation; she loves to have showy and fashionable dresses, bonnets and the like, and trinkets for her dressing table."

Dr. Howe died at the beginning of the present year, since the foregoing report appeared. It is to be hoped that the world will not be deprived of the more elaborate account of Laura's education which he intended to publish. Himself the inventor of printing in raised letters for the use of the blind, he also laboured much to improve the condition of idiots and the feeble-mindde generally.

II. PHYSIOLOGICAL AND PATHOLOGICAL.

A Theory of Heredity.—Mr. Francis Galton (*Journal of the Anthropological Institute*, 1875) has started a new theory of Heredity, in advance of Mr. Darwin's doctrine of Pangenesis. Mr. Darwin's "hypothesis" (as he carefully called it) is stated by Mr. Galton in the following series of propositions:—(1) There are cells and a great number of gemmules. (2) The cells multiply by self-division, and during this process throw off gemmules. (3) The gemmules multiply by self-division, and any gemmule admits, under favourable circumstances, of being developed into a cell. (4) The personal structure is formed by a process analogous to the fertilisation of each gemmule that becomes developed into a cell, by means of the partially developed cell that has preceded it in the regular order of growth. (5) The sexual elements are formed by aggregations out of the gemmules, all of which are supposed to travel freely through the body. Mr. Galton allows (1) and (3); holds the process of cells throwing off gemmules in (2) to be of minor importance, as accounting only for the small class of facts, not yet sufficiently ascertained, of characters artificially created in the parents being transmitted to their offspring (see MIND I. p. 134); and takes ground against (4) and (5). Using the word "stirp" to express "the sum-total of the germs, gemmules, or whatever they may be called, which are to be found, according to every theory of organic units, in the newly fertilised ovum," he supposes that only part of the stirp becomes developed into the personal structure of the organism, leaving a residue, much larger, of undeveloped germs, out of which are formed the sexual elements entering into the next generation. The formation of the personal or bodily structure (he holds) proceeds by successive segmentations of the host of gemmules in the stirp, due to their mutual affinities and repulsions, followed by development of the dominant members in each sept thus formed. There is, he urges, every reason to believe that germs when developed into cells become infertile; hence the necessity for supposing that the characters transmitted from generation to generation are maintained by an undeveloped residuum in each division. The free circulation of gemmules throughout the body, assumed in Pangenesis, he rejects as physically inconceivable, also as involving consequences (*e.g.* that people would resemble their maternal grandmothers more than their other grandparents) altogether at variance with experience. Yet as all varieties of the gemmules must be supposed present in every part of the body in order to account for the reparation of tissues, &c., he provides for this part of the case by assuming that the divisions taking place in the stirp are never clean and precise, but always include stray and alien gemmules which find lodgment in the bodily tissues developed out of each segmentation. He is able upon his assumptions to explain Sex as evolved to secure the advantage of double parentage for the stirp; also to account for the facts he has very carefully established regarding Twins in another memoir (same vol. of the *Journal*), viz., that when "true" (*i.e.* developed from the same ovum or primary stirp), they are either extremely alike or (more seldom) so unlike as to be contrasted and, in a sense, "complementary" the one of the other. EDITOR.

Intermittent perception of very weak sounds.—Urbantschitsch points out that when a watch is held at a distance from the ear where it can scarcely be heard, the ticking is by no means heard uniformly, but there is an apparent increase and decrease in the sound—a *crescendo* and *diminuendo* on a small scale. So marked is the effect, that occasionally the sound dies away, disappears, and again is heard distinctly. This intermittent auditory sensation is analogous to the well-known optical phenomena of the disappearance and re-appearance of after-images. He proceeds to show (1) that the variability of the sensation does not depend on variations in the intensity of the sound of the watch, but on variations in the ear itself, because, when the faint sound is listened to by several persons at the same time, the intermissions occur to the different individuals at different times, and are therefore subjective and not objective. He observed the same effects with the sound of a jet of water and with one of the resonators of Helmholtz placed before a tuning-fork kept in vibration by an electro-magnet. Neither (2) are the intermissions due to the movements of breathing or of the circulation. The cause of the variations are in the ear itself, and thus the question arises whether it is that the sound-conducting apparatus is incapable of transmitting sounds of feeble intensity uniformly, or whether the fault lies in the sound-receiving apparatus in the internal ear. He found (3) that the variations were noticed even in cases of perforated tympanic membrane, and in the case of a woman in whom the bones of the ear were partially disorganised. So far then as the sound-conducting apparatus is concerned, the effect might be due to the action of the stapedius muscle, which, Toynbee states, is in action during the act of listening. If, as Toynbee asserts, the function of the stapedius is to lift the stirrup-plate from the oval window, and thus make it susceptible of the smallest vibrations, one might reasonably suppose that the weak muscle would speedily be exhausted during the act of listening, and thus from time to time relax itself, or, on the other hand, that from over-excitation it might become tetanised. In either case—relaxation or tetanus—there would be a corresponding diminution or disappearance of the sound. But (4) it has been shown by Wreden that variations in the pressure of the base of the stapedius on the oval window cause various auditory sensations, often of a distressing character, and the absence of these in the present case is against the view that the intermissions of sounds of weak intensity are caused by the stapedius muscle. (5) The intermissions also occur when the sound is transmitted through the bones of the head without the action of the conducting apparatus of the ear at all. Consequently we arrive at the following conclusion:—The receptive capacity of the auditory nerve with respect to sounds of very feeble intensity is not uniform, and if these faint sounds continue, its capacity is temporarily even entirely lost (*Centralblatt*, p. 625). The Reporter would venture to remark that possibly the cause of the variations may be owing to intermittent action in the perceptive auditory centres within the brain.

Rivalry of the Fields of Vision.—According to Schön and Mosso this phenomenon may be observed if one eye be closed and the other looks at a uniformly coloured surface, without fixing attention specially upon it. That part of the field common to both eyes is then seen to become alternately brighter and darker. The rhythm of the obscurations differs in different persons, but always so that every observer attends about 7-10ths of the time only to the open eye and 3-10ths to the closed one. If the power of the eyes be unequal there is no obscuration for the good eye, whereas it is permanent for the bad one. The phenomenon is not observed in reading, as the attention is directed to the open eye.

On Binocular Colour Mixture.—Many persons are unable to observe a binocular combination of colours, the colours not uniting to form one image, but appearing alternately or perhaps being seen side by side in the visual field. W. v. Bezold and Dobrowolsky have investigated the matter with great care. According to v. Bezold the cause of differences of opinion as to the possibility of binocular colour mixture lies in the necessary variations in the accommodation of the two eyes. To an observer, both of whose eyes are of exactly equal structure, it seems impossible to see with the same distinctness differently coloured surfaces in the same plane or to combine them binocularly. Either the distances of the two surfaces from the eyes must be different, or the two eyes must be differently focussed. But if the illumination of the two colours be equal, and if a cross be placed within the surfaces to facilitate fixation of the eyes, v. Bezold found it possible to obtain binocular colour mixture, and he had the same results as by the use of Maxwell's colour-top (*Annal. d. Physik. u. Chemie*, p. 585). Dobrowolsky confirms v. Bezold's experiments, and describes others made by himself with the stereoscope. He succeeded after practice in obtaining the compound colour purple by placing a weak concave glass before the eye which was fixed on the blue surface, and a convex glass of corresponding power before the other eye which had to look at the red surface. He also found that some persons could obtain binocular colour mixture readily on account of the unequal refraction of their eyes. (Pflüger's *Archiv.* X. p. 56.)

The History of Young's Discovery of his Theory of Colours.—Alfred M. Mayer has made a most interesting historical and critical communication on this subject to the *Lond. Edin. and Dub. Philosophical Magazine* for February, in which he shows (1) that Young formed an hypothesis similar to that known as Brewster's (red, yellow, and blue, as the three simple colour-sensations); (2) that he subsequently modified his hypothesis and adopted red, green, and violet as the three elementary colour-sensations; (3) that this change of opinion as to the three elementary colours was made on the basis of a misconception by Wollaston of the nature of his celebrated observation of the dark lines in the solar spectrum, and also on the basis of an erroneous observation made by Young in repeating Wollaston's experiment; and (4) that Young afterwards tested his hypothesis of colour-sensation, and found that it was in accord with experimental facts. Professor Mayer also quotes from Young's Bakerian Lecture "On the Theory of Light and Colours," delivered before the Royal Society, Nov. 12th, 1801, to show that Young imagined "each sensitive point of the retina to contain *particles* capable of vibrating in perfect unison to those vibrations causing three principal colours, and that each of the particles is capable of being put in motion, less or more forcibly, by undulations differing less or more from a perfect unison. This would suppose such a triple *molecular* constitution of each nerve fibril as to cause the three species of its constituent molecules (or the atoms forming the molecules) to be *in tune* with the three rates of vibration corresponding respectively to the undulations of the æther causing red, yellow, and blue." In the same journal for May 1875, Prof. Mayer expressed similar views, substituting, however, for yellow and blue, green and violet according to the later theory of Young, revived by Helmholtz, and at present held by physiologists. The Reporter would observe that even with the highest microscopic powers now in use there is no fresh histological evidence in support of the theory, and any one might quite legitimately transfer the hypothetical differences of structure to the central organs.

Influence of Spinal Paralysis in Children on the Development of the Cortex of the Brain.—Various experimental researches have shown that when one or more of the external organs of sense have been destroyed in animals soon after birth, portions of the brain corresponding to these senses are not fully developed. Now it is not uncommon to meet with persons who have been the subjects of spinal paralysis from early life, and who are often of weak mind, and it becomes of importance to ascertain whether the paralysis will result in non-development of certain parts of the brain. It is not unlikely that at a time when the development of the brain is still far from complete, as in early childhood, and when the most important psychical functions and their manifestations through muscular activity are only present in embryo, any disease which would interfere with the normal connection between the brain and the muscles would not be without influence on the development of the psycho-motor centres in the convolutions, the existence of which has been recently demonstrated. As bearing on this interesting question, Sanders has recorded a case of a boy who died at the age of 15, after having been the subject of spinal paralysis for 12 years. After death, in addition to atrophy of the muscles and motor nerves, the anterior columns of the cord and the anterior cornua were also found atrophied. The brain (*a*) was carefully compared with that of an idiot (*b*) who had no paralysis, and with that of a healthy person (*c*), and it was found that certain convolutions, or portions of convolutions, which contain the centres for movement were atrophied in (*a*), but not in (*b*) and (*c*). It was also found that in (*a*) there was greater atrophy of the centres belonging to the side which showed the greater degree of paralysis. The conclusion arrived at by Sanders is that the defective development of the convolutions was due to the atrophied and diseased condition of the anterior portion of the spinal cord. It would be important to have careful measurements made of the height and breadth of the convolutions supposed to contain the motor centres in all cases of hemiplegia of long standing. (*Centralblatt*, p. 225.)

J. G. McKendrick, M.D.

Mental Automatism in Epileptics.—Actions of an elaborate character, apparently performed without consciousness, are often seen in epileptics as isolated phenomena amid normal mental processes. They occur after, or possibly replace, epileptic paroxysms. Dr. Hughlings Jackson (*West Riding Asylum Reports*, vol. V.), believes that they result from the over-action of cerebral centres which are high but not the highest, this over-action resulting from the withdrawal of the controlling influence of the highest centres by the epileptic paroxysm. The more imperfect the paroxysm, the more elaborate is the automatic mental action. Some fits are so slight as to involve consciousness only (attacks of "*petit mal*"). It is after these that the most complex action is seen. In a fit the processes of cerebral action are resolved into their most general elements. The slighter is this resolution (*dissolution* Dr. Jackson calls it), the more special, *i.e.*, the more complex is the subsequent automatic process. Actions rendered automatic by frequent repetition, as playing the piano, may go on undisturbed by a very slight, though distinct paroxysm. Or fresh automatic action may be developed. These new actions are often the same in *form* as those present in the patient's consciousness before the attack, but different in *contents*. Among many examples given are these:—An epileptic in an omnibus suddenly blew his nose on a newspaper, and when he went out gave the conductor £2. 10*s*. A doctor was feeling a patient's pulse when an attack came on; on recovering, he began to feel his sister's pulse, who was near him. A man, whose sister was going to prepare some cocoa, went suddenly into the kitchen, and was found there mixing some cocoa in a dirty gallipot containing cats' food. A woman almost cut her arm off with a knife with which she was going to cut some bread. In some cases the actions appear to be the result of an epileptic dream, its character being determined by sensory phenomena in the paroxysm. The medico-legal bearing of these cases is obvious. Most of these actions were absurd, but an act of violence in any one of the cases would have had the same significance.

The Contagion of Insanity.—Dr. Daniel describes some cases in which specific delusions spread from one insane patient to another, and apparently actual mental derangement was produced in the healthy by prolonged intercourse with the insane. He points out that our ideas and feelings depend in large part on those with whom we are in constant association; that persons who live long together acquire similar modes of thought and moral temperament—some say similar physical characteristics. He asserts that, besides the rare epidemics of mental derangement universally recognised, asylums frequently present isolated instances of contagion. He has seen convalescents from mania distinctly acquire delusions of persecution, &c., from frequent intercourse with insane persons affected with such delusions, and speedily lose them on isolation. The examples he gives of insanity acquired thus have some of their significance removed by the circumstance of consanguinity. But when prolonged contact with the insane does not cause insanity, it may determine irritability of character. (*Annales Medico-Psychologiques*, November, 1875.)

The Influence of Coloured Light on the Insane.—S. Ponza, director of the asylum at Alessandria, has investigated this point under the advice of Father Secchi, and recorded some results too startling and too few to be more than suggestive. Cases of mania were quieted in a few hours by being placed in a room, the walls and windows of which were red. Violet light is said in other instances to have been equally effective. In some cases a permanent cure was effected in a few days! (*Annales Medico-Psychologiques*, January, 1876.)

W. R. GOWERS, M.D.

III. PHILOSOPHICAL JOURNALS.

Zeitschrift für Philosophie und philosophische Kritik. Bd. 67. Hft. 2. Halle, 1876.

This number opens with the first of a series of articles in which Dr. Steffens is to show what knowledge of the history of Greek philosophy from Thales to Plato may be gained from the writings of Aristotle. After briefly indicating the extent of our dependence on these writings for a knowledge of ancient Greek speculation, the essayist quotes or refers to and explains the various passages which they contain bearing on (1) the general course of the development of Greek philosophy from its rise to the time of Plato; (2) the distribution and succession of the schools of philosophy during that period; and (3) the tenets of the Ionic physicists, Heraclitus included. If he collect and expound in the same careful manner all the scattered observations of Aristotle on the Eleatics, Pythagoreans, Sophists, and Socrates, the result will be a nearly exhaustive account of the information derivable from the Aristotelian works regarding the history of pre-Platonic philosophy in Greece. Such a result will amply reward the labour required to attain it. But it is to be hoped that Dr. Steffens will give us something more. The natural conclusion of the work which he has undertaken will be an investigation into the worth of the historical view of ancient Greek philosophy which he has drawn from Aristotle, showing how far that view must be accepted, how far other sources enable us to correct it, and how far there is reason to believe that our knowledge of ancient Greek philosophy is hopelessly imperfect. An investigation of this kind is none the less needed because all depreciatory estimates of Aristotle's qualifications as a historian of philosophy, such as those of Bacon, Schleiermacher, Lommatsch, and Dühring can be discarded at once as unworthy of discussion. The part of Dr. Steffens's essay which treats of the doctrine of

Heraclitus seems satisfactorily to prove that, if Aristotle's testimony is to be credited, the Ephesian philosopher was a genuine *φυσικός*, and not a Grecian Hegel; that to suppose, as Lassalle does, the identity of Being and Non-being to have been his fundamental principle and Fire merely a symbol of the dialectical process is wholly without warrant. This is also the conclusion to which the study of the Heraclitean fragments has led Dr. Paul Schuster, the author of the ablest recent monograph on Heraclitus. His treatise *Heraklit von Ephesos* is reviewed by Dr. Siebeck in the number of the *Z. f. Ph.* under examination. The general aim of Dr. Siebeck's criticisms is to show that reaction has carried Dr. Schuster somewhat too far, and that Heraclitus in some passages meant more than his interpreter allows.

In an article headed " Anti-materialism " Professor Hoffmann, the editor of Baader's Works, reviews Dr. Büchner's *Nature and Science.* Of course, he does not spare either the book or its author. The article displays a remarkably wide acquaintance with the literature of the materialistic controversy—a literature which in Germany has outgrown all reasonable bounds. The most interesting portion of the number to psychologists will undoubtedly be the elaborate paper in which Professor Fortlage states and defends his own views on the blending or coalescence of homogeneous elements in *Vorstellungen*, and attacks those of Ulrici, with the equally elaborate answer of Ulrici. It is impossible in the space at our disposal to give an intelligible summary of these articles. The subject of them is one of very great psychological importance, and they will be found specially helpful to the readers of Fortlage's *Psychologie* and Ulrici's *Leib und Seele.* The mistakes into which these two psychologists have fallen in studying each other are mistakes of a very natural kind, into which most readers will fall, while it is instructive to see how much real agreement there is between them even where, owing to the difference in their use of terms, they at first glance seem to be, and have believed themselves to be, at variance. Ulrici confines the term *Vorstellung* to conscious states, and consequently refuses to admit what Fortlage says about the blending of unconscious *Vorstellungen*, but he fully grants that there are unconscious psychical states and that these blend. Fortlage, defending himself against the charge of confounding the mental with the physical by insisting on what he calls " the law of attraction " and " the force of attraction," makes explanations which leave us in doubt as to his reasons for using the phrases at all. The attraction, he tells us, is not the condition or cause but the consequence and result of the coalescence. It is thus entirely different from the attraction which matter exerts on matter. Perhaps the point most emphasised by Ulrici is that representations do not coalesce of themselves.

Dr. Ulrici also contributes a short notice of Pfleiderer's *Modern Pessimism* and the first half of a review of Brentano's *Psychology.*

Zeitschrift für Völkerpsychologie und Sprachwissenschaft. Bd. 8. Hft. 4. Berlin, 1875.

The first article in this number is a criticism of Dr. Steinthal's views on human and animal mind by one of his disciples, Dr. Glogau. Dr. Steinthal has not yet taken up a decided position towards the Darwinian doctrine of descent. He has expressed dissatisfaction with the objections which have been urged against it and acknowledged in a general way that it may be true, but he has not accepted it as proved. This caution seems to Dr. Glogau excessive. He thinks the evidence in favour of Darwinianism conclusive and that Dr. Steinthal would have before now openly professed his adherence to it and would have ceased to speak, as he still continues to do, of absolute distinctions between the animal and human soul, had there not been deeply-rooted peculiarities in his character and aims which have prevented the natural development of his thoughts on the question of the origin of humanity. He proceeds to inquire what these have been—a rather delicate investigation to undertake in a journal edited by the person whose character is subjected to analysis, but one which is not uninteresting and which is conducted with considerable tact. He points out that an ethical ideal has floated before the mind of Steinthal from the beginning of his thirty years' career of research, and that his central and guiding conviction has throughout that time been that the law of moral life was not to be found in individuals or outside of or above humanity but only in humanity itself, the collective spirit, the *Allgeist* in which individuals live and move and have their being. In this conviction lies, according to Dr. Glogau, both the strength and the weakness of Steinthal. It explains his almost negative attitude towards the philosophy of religion; it explains equally his non-acceptance of Darwinianism. Dr. Glogau argues, in conclusion, that there are no essential distinctions between the animal and human souls; no gulf which the Darwinian theory does not bridge over. Dr. Steinthal briefly replies. He cannot see, he says, that anything he has written concerning the differences between the souls of men and animals is anti-Darwinian, although it may not be Darwinian. The Darwinian doctrine of descent does not abolish or efface the distinctions between the different genera and species of the naturalist; it only explains them genealogically. It does not represent the varieties of living forms as having been developed in one long line but after the likeness of an extremely ramified tree. Hence it allows us to speak of absolutely distinct species even while it maintains the relativity of the notion of species. There are absolute distinctions between a mouse and an eagle, and there may be such distinctions between a man and an anthropoid ape. Man may never have been an ape; the ape may never be able through development to become a man. They may have had a common ancestor and yet may always have been, and may to all eternity be, in themselves distinct. Dr. Steinthal promises to define distinctly and fully his position towards the Darwinian theory on a future occasion.

The next article is a lengthened, careful, and able review of my *Philosophy of History in France and Germany* by Dr. Paulsen, whose work on Kant was briefly noticed in the first number of MIND. I have to thank him for his general approval of the volume and still more for his criticisms on certain portions of it. He conceives it to have been a mistake in me not to have stated my views as to the sphere, scope and method of the philosophy of history at the beginning of the work, instead of reserving them for its conclusion. The objection has been urged by others; with the greatest force, perhaps, by Mr. J. Morley. And I grant at once that the course I have adopted has most of the disadvantages and the course recommended most of the advantages which my critics have indicated. But the question which I had to consider was, which of these two courses had the most and greatest advantages and which the fewest and least disadvantages. It still seems to me that if this question be fully considered the conclusion I came to must be seen to be the right one. Dr. Paulsen also argues that in my Introduction I have not insisted sufficiently on the hindrances which mediæval Christianity, owing to its defective appreciation of secular life, placed in the way of the rise and spread of philosophical views of history. Now I certainly meant distinctly to indicate these hindrances and confess that I still think I have done so, although I did not, and do not yet, see the necessity of dwelling on truth which writers so popular as Buckle, Lecky, and Draper have fully stated, not to say over-stated. I was glad to economise my own pages by referring to theirs. Dr. Paulsen, like Mr. Mill and Mr. Morley, maintains the consistency of Comte's law of three states with adherence to Theism. His reason is that Theism is a form of belief but not a state of knowledge. I can admit no such distinction between belief and knowledge as this implies, and deny the right of any person to believe what he does not know. I must refrain from considering his remarks on the chapters devoted to Lessing, Herder, and Kant. He commends my examination of Hegel's philosophy of history but thinks it was almost unnecessary, as in Germany the Hegelian philosophy will soon be extinct. This remark is not quite worthy of my critic's natural perspicacity. It has been said that good Americans when they die go to Paris. Who can deny that bad German philosophies when they die go to Oxford?

Dr. Steinthal has a short notice of Spengel and Poske's translation of Tylor's *Primitive Culture.* He dissents, of course, from Mr. Tylor's views as to the origin of language, and especially from the way in which he has spoken of W. v. Humboldt, but justly and generously acknowledges his great merits.

Philosophische Monatshefte. Bd. xi., Hfte 9, 10; Bd. xii., Hft. 1. Leipzig, 1875-6.

The first article in the first of these numbers is an obituary notice of the late Professor v. Leonhardi, by Otto Busch, of Dresden. It is to be hoped that an adequate biography of this most devoted

Krausean and most zealous philanthropist may soon appear. The next article is a lecture on Schopenhauer, delivered in Madrid by D. José del Perojo. It contains a clear and succinct exposition of Schopenhauer's pessimism, and shows considerable insight into its self-contradictions, narrowness, and barrenness. It represents it at the same time as "neither a mere reaction from absolute optimism, nor a necessary consequence of it, nor the lamentation of a sickly misanthropic brain, but as the expression of a necessary phase of the human spirit." Del Perojo, it may interest our readers to know, is a young man of twenty-five years of age, a native of Santiago (Cuba), who, after having been initiated into the Krausean philosophy by Salmeron and G. Serrano at the university of Madrid, studied at Paris under Janet, Levêque, Taine, and Bénard, and at Heidelberg under Bartsch, Wundt, and K. Fischer. He has just published a volume entitled *Ensayos sobre el movimento intelectual en Alemania*, and proposes to issue a Spanish translation of the chief works of Kant, beginning with the *Kritik der reinen Vernunft*. He has chosen for his work in life to make German philosophy known to his countrymen. A note by Dr. Weigand on the literature of the Platonic Epistles may be found useful by those for whom it is intended.

In No. 10 Dr. Meinong administers a severe and merited castigation to Dr. Dühring for the manner in which he has characterised some of the most illustrious thinkers in his *Critical History of Philosophy*. According to Dr. Dühring, philosophy implies the co-operation of two factors, knowledge and will, and, in judging of those who have cultivated it, it is no less necessary to estimate aright their moral than their mental qualities, their disposition (*Gesinnung*) than their intellect. There may be a good deal of truth in this, but, as Dr. Meinong shows, Dr. Dühring's own disposition does not fit him to be a judge of the dispositions of others. He has given expression to the most unworthy estimates of the greatest philosophers of the past, and uses very unbecoming language regarding some of the most justly distinguished of his contemporaries. Dr. Meinong dwells especially on his treatment of Trendelenburg. It would not have been inopportune if he had also protested against the offensive way in which Dr. Dühring has thought proper, both in his *History* and in his recently published *Course of Philosophy*, to speak of Mr. Darwin and Mr. Spencer. It can do them no harm, but it is a pity to observe a man of real talent discredit himself by imitating Schopenhauer in his least commendable peculiarity. Pfarrer G. Knauer attempts to show against Dr. L. Weiss that the belief in atoms, so far from having any scientific foundation, is a mere illusion springing from "an antinomy of the pure reason" detected and exposed by Kant. "It is a disgrace to the nineteenth century," he says, "that it should still burden itself with this atom-mania, and even boast itself of it in the name of science."

In the two numbers of the *P. M.* thus far noticed there is a long essay by Max Drossbach on the "Perceptibility of Phenomena."

It attempts to prove that phenomena are not, and cannot be, perceived; and that all philosophy, realistic and idealistic, empirical and subjective, which has hitherto existed, being built on the false assumption that phenomena alone can be perceived, must be pulled down and a new structure raised on the true foundation, the diametrically opposite position. Phenomena are, he holds, the consequences of perceptions, and, therefore, cannot be their objects. We do not perceive our perceptions nor the representations to which they give rise, but only the forces which through their action upon us produce or determine them. Causes are the very things, and the sole things, which are perceived. The ordinary empiricism which passes for experience presupposes what may be called an *à priori* experience, in which causes and existences in themselves are directly given to us. It is only by the help of this theory, he thinks, that subjectivism in philosophy can be overcome. He briefly indicates how his views as to the nature of atoms, of space, of time, and of the order of the phenomenal world, are connected with his views as to the nature of perception.

The chief article in the last of the numbers before us is by Dr. Hans Vaihinger, on the "Three Phases of the Naturalism of Czolbe." It is an admirably clear and comprehensive account of the various stages through which that thinker's speculations passed. Those who have had their curiosity regarding him awakened by the pages which Lange has devoted to the first two phases of his philosophy in the *Geschichte des Materialismus*, or the brief notices in Ueberweg, Meyer, &c., will here find it gratified in a considerable measure; those who have read a few of his writings will be still more likely to welcome such a survey of his whole speculative development. This number contains also a most elaborate summary of the first two of Professor v. Stein's *Seven Books on the History of Platonism.* It concludes with an obituary notice of F. A. Lange, by Dr. Cohen, and the touching address delivered over his grave by Dr. Nissen.

Athenæum, Erster Jahrgang. Hefte 4-8. Jena, 1875.

The papers in these numbers which have most claim to notice in a periodical like MIND are Dr. v. Hartmann's "Contributions to the Physiology of the Central Organs of the Nervous System," in pts. 4, 5, and 6. They aim at giving a view of all the more important results of recent research in this sphere, while omitting anatomical and physiological details of interest only to the professionally educated. Dr. v. Hartmann thinks neither Maudsley's *Physiology and Pathology of the Mind* nor Wundt's *Grundzüge der physiologischen Psychologie*—the two works in which the subject has been best treated—altogether satisfactory. The former does not now give us the most recent results of investigation, and the value of the latter is much lessened by the erroneous notion that the passions are dependent on the conceptions instead of the conceptions on the passions,—by its author's want of insight into the unconscious emotional life of the soul and into the power and significance of the will. Dr. v. Hartmann attempts to combine the leading ideas of

Maudsley with the materials supplied by Wundt, so as to correct and complete the teaching of the one by that of the other. Of course, he also endeavours to show that the physiological facts and doctrines which he presents confirm and illustrate his philosophy of the Unconscious. These papers have just been transferred into the new (7th) edition of Dr. v. Hartmann's principal work, where they are sure to attract enough of attention. On this account it would be out of place to linger over them in the notice of a journal.

Dr. Otto Zacharias has in No. 6, an essay on "The Origin of Life in the light of the Development Theory." He expresses his dissatisfaction with the view that life originated on the earth at a given time out of non-living matter and declares for that which Quinet and Preyer have put forth, namely, that the earth carried life along with it from the mass whence it was detached; that life is not linked to certain points of space or periods of time; that it is of a cosmical not of a terrestrial nature and has been coæval with the universe. Dr. Zacharias has not endeavoured to prove this theory and has not condescended to consider any of the objections which readily present themselves to the mind against it.

Among the notices or analyses of books, etc., I may mention those of Venezianer's *Allgeist*, Despines' *De la Folie*, Wundt's *Aufgabe der Philosophie*, Strumpell's *Natur und Entstehung der Traüme*, Lange's *Geschichte des Materialismus*, Renouvier's *Science de la Morale*, and Marselli's *Scienza della Storia*.

R. FLINT.

Revue Philosophique de la France et de l'Etranger. Dirigée par Th. Ribot. Première Année, Nos. I.—III. Paris, 1876.

The appearance, simultaneously with MIND, of a new French review which proposes to present "the actual philosophic movement without exclusion of any school," is not without significance for those who are hoping that all future philosophic construction will set out from a well-assured and commonly accepted basis of scientific truth. The editor, M. Th. Ribot, is favourably known in this country not only for his careful studies in philosophy, more especially the English and later German developments, but also for his acquaintance with those objective lines of research which in the view of most living psychologists have a direct bearing on their special science; and his excellent preface, which is borne out by the contents of the first three (monthly) numbers, testifies to his ample interpretation of the present philosophic movement.

The original articles in No. I., include, in addition to a translation of Mr. Herbert Spencer's article on "The Comparative Psychology of Man," two papers of considerable interest. The first is by M. Taine, and deals with "The acquisition of Language in Children and Primitive Peoples." It traces the successive stages in the first employment of vocal sounds by an infant girl, as noted in a series of careful observations. The writer emphasises the spontaneous element in this acquisition, and points out how the child began of herself to extend the denotation of her terms by a rough process of generalisation. Arguing that the mental state of the child corresponds to that of primitive societies, M. Taine proceeds to indicate the agreement of these observations with the views of Mr. Max Müller respecting the acquisition of language by the race. The second article, which is very pleasant reading, is from the pen of M. Janet, and has for its subject the vexed question of "Final Causes," being the introductory chapter of a book which he is about to publish under that title. He defines the inquiry and points out the abuses to which the idea of Final Cause is liable.

No. II. contains three articles of general interest, besides an erudite discussion of the "Nuptial Number in Plato," which can hardly be said to address itself to philosophic students as a whole. The first of these three, on "The Mission of Philosophy at the present time," is a translation of an address delivered by Professor Wundt on the occasion of his instalment in the chair of philosophy at Zürich. It is remarkable for the decided way in which it asserts that no existing German philosophical system, not even that of Kant or the newer doctrine of Herbart, is fitted to be a synthesis of the results of the several branches of modern scientific research, though these researches, distinctly pointing to a conception of the universe as a unity, are inviting such a synthesis. The second article is by M. Ch. Bénard, and gives a careful *résumé* of the work of the two schools of German Æstheticians,—the Hegelian idealists and the Herbartian realists, each of which is regarded by the writer as of like value in making good the deficiencies of the other. In a third paper Mr. G. H. Lewes re-states more fully his objections to the hypothesis of the Specific Energy of the Nerves, reasoning, much as Professor Wundt has recently done, that the various groups of sensory nerves acquire their special sensibility by a process similar to that by which movements become automatic, that is to say though innumerable excitations of a peculiar form determined by the structure of the peripheral organs.

The most important article in No. III. is from the pen of the editor himself, and is an excellent summary of recent research carried on by physiologists, chiefly German, into the "Duration of Psychical Processes," including those of perception and volition, as well as those of reproduction, so far as these last have been subjected to objective measurement. After this, in order of importance, comes the first of a series of articles by M. E. Vacherot on "The antecedents of the Critical Philosophy," which is perhaps a little too *weitläufig* (as the Germans would say) to supply much new elucidation of Kantism. There is also a translation of J. S. Mill's excellent criticism on Berkeley's Philosophy, published originally in the *Fortnightly Review* on occasion of Prof. Fraser's edition of his works. A noteworthy feature in this last number is the appearance of the heading "*Observations et Documents*," under which M. Taine give us a group of pathological observations of singular interest for the psychologist. The disease which is called "Cerebro-Cardiac Neuropathy" and which has been made a special study by Dr. Krishaber, is supposed to consist in a contraction of the blood-vessels which nourish the sensory centres, and is attended by a perversion of the sensations though the intellectual functions proper are unimpaired. The sudden rupture of continuity in all the elements of experience is interpreted by the patient not merely (as one might expect) as the substitution of a new external world for the old, but also as a break in personal identity. His first conviction is that he no longer exists; this gives place to a belief in a new personality, when the fresh order of things proves itself to be stable. M. Taine thinks these cases throw more light on the growth of the idea of the ego than a volume of metaphysics. We shall look for more of this kind of psychological interpretation of pathological observation from the same competent hands.

JAMES SULLY.

The Journal of Speculative Philosophy, Vol. ix. No. 4. (Edited by WM. T. HARRIS.) St. Louis, Mo.

The first number of the *Journal of Speculative Philosophy*, published at St. Louis, in the State of Missouri, appeared in 1867. It is certainly remarkable that the first attempt to establish a Philosophical Review in the English language should have been made in so remote a quarter, and under the auspices of men at the time unknown to the literary and scientific world. Mr. Wm. T. Harris (now Superintendent of the City Public Schools), met in St. Louis with a small circle of cultured Germans who believed with heart and soul in the mission of the apostles of Pure Reason. The little band of ardent students gathered together frequently to master and discuss such writers as Kant, Fichte, Hegel, until they became penetrated with the conviction that the hope of the world lay in appropriating the spirit and method of the masters of Transcendentalism. "The 'Palingenesia' of the intellect is as essential as the 'regeneration of the heart,' and is at bottom the same thing as the mystics teach us." They saw clearly the intellectual disorder of the time, the disintegration of old creeds, the tendency of science to pass beyond the empirical stage, and they offered to smooth the path of their countrymen to the shrine of Absolute Truth. "Our course in the practical endeavour to elevate the force of American thinking, is plain; we must furnish convenient access to the deepest thinkers of ancient and modern times. To prepare translations and commentary together with original exposition, is our object. Originality will take care of itself. Once disciplined in Speculative thought, the new growths of our national life will furnish us objects whose comprehension shall constitute original philosophy without parallel." It must be admitted that Mr. Harris and his friends have amply redeemed their promise. Few English readers probably are aware of the number of first-class works in philosophy they may now study (whole or in part) in their own tongue. The following are only a sample. Leibniz's *Monadology*, Descartes' *Meditations*, Fichte's *Sun-clear Statement of the Science of Knowledge* and *New Exposition of the Science of Knowledge* (*Neue Wissenschaftslehre*), Schelling's *Introduction to the Philosophy of Nature*, Hegel's *Outlines of Logic*, chapters from his *Phenomenology of Mind* and *Æsthetics*, chapters from the works of Schopenhauer, Herbart, &c. This list conveys, however, but an incomplete idea of the amount of good work done by this journal in the way of translation. A variety of small treatises and important single articles by well-known names help to put the English reader in a position to understand the latest results of philosophical thinking in Germany. It should be added that a large amount of space is given to Æsthetics and æsthetic criticism. The editors see in Art the fore-court to the temple of Religion. It has at the present time the advantage of being open to all, while affording a high spiritual discipline. It is sufficiently evident where these writers stand. It is from Plato and Hegel that they derive both the form and content of their doctrine. The human mind must pass through the three stages of sensuous knowing, reflection or understanding, and reason or speculative insight. Science is emerging out of the first stage into the second. In a noteworthy article on Mr. Spencer's *First Principles*, the editor, in the first number of the *Journal*, treated the "Synthetic Philosophy" as the typical expression of the second (and intermediate) phase of Science. Mr. Spencer's system, he maintained, is not an ultimate synthesis, so long as there remains that dark figure of the Unknowable unreconciled with the bright verities of phenomenal experience. The last number which has come to hand, that for October 1875, contains an article stretching to 64 pages, from the pen of Dr. J. H. Stirling, entitled, "Mr. Buckle and the *Aufklärung*," in which Buckle and his type of thinking are treated as phenomena already vanishing. "What we live in now is *Aufklärung* degenerated into *Aufklärerei*." In the same number is continued a translation of Kant's *Anthropology*, begun in the July number, by A. E. Kroeger, a translator who has done good service from the establishment of the Journal. Mr. Anderson asks "What is Logic?" and answers that it is the Science of Things, not of Thought nor Forms. "Logic is the science of substances and qualities as such." The department of Correspondence is interesting. Dr. Hickok replies to the editor's remarks on his book entitled *The Logic of Reason* in the former number, and arrives at the conclusion: "The attempt to speculate is vain by abstract thinking alone. Speculation seeks an ultimate, and no abstract thinking can reach it. As already seen in the category of the universal, thinking can presuppose but cannot verify; so also is it helpless in all categories." From which it appears that the principles of the Journal do not always pass unchallenged. To whatever school the reader may incline, he cannot, however, but allow that these workers in the West are deserving of most grateful recognition.

W. C. COUPLAND.

XI.—NOTES.

The Uniformity of Nature.—Professor Bain maintains that we can give no reason for our belief that the future must resemble the past; but that the postulate of the uniformity of Causation is an assumption. We must risk it, we cannot logically justify it. Although, as a matter of fact, we believe that water will boil at 212° F., "there is no contradiction in saying that a million of years hence the boiling point at the ordinary pressure of the air will be raised to 250° F." (MIND, No. I., p. 146.) I have maintained that the true expression of the uniformity of Causation (usually called Nature's uniformity) is the simple assertion of identity of effect under identical conditions; whatever is, *is* and *will be* so long as its conditions are *unchanged;* and this, I say, is no assumption at all, but an identical proposition. (*Problems of Life and Mind*, vol. II., p. 99.)

The psychological grounds on which we believe in uniformity are not quite the same as the logical grounds on which we may justify that belief. The belief proceeds on an assumption, but what is assumed is the identity of past and future: we believe that the water will boil at the same temperature to-morrow as to-day, and a million of years hence as to-morrow, only when we have no ground for suspecting any change will take place in the conditions which determine the boiling of water; knowing quite well that if there is a change in the conditions there must be a corresponding change in the result. When this belief has to be logically justified it can only be by reducing its terms to the terms of the identical proposition—"there will be no change unless there is a change." The combinations of Nature are incessantly varying, the uniformity of Nature is the identity of result under identical conditions. It is not more irrational to suppose the boiling point of water to be raised to 250° F. under certain changes in atmospheric pressure, than to suppose it lowered to 100° under other changes; but to suppose that, while the conditions represented by the 212° boiling point remain unchanged, there will be any change in the result, is to suppose (as John Mill supposed) that 2 + 2 might possibly equal 5 in another universe.

Professor Bain rejects my view, unless I am understood to include Time and Space among the conditions; in that case he will admit it. "Is he prepared," he asks, "to set aside time and space as not being conditions, as not needing to be taken account of at all?" I answer: Time and Space are abstractions; drawn, indeed, from concrete experiences, but not operative as abstractions among physical agencies. He declares that, "although the physical conditions of an effect remain as they are, the effect may not be constant through all the eternity of years, and all the infinitude of space." Does this mean that an effect depends partly on its physical and partly on metaphysical conditions: or that an effect is the product of all the physical conditions *plus* the abstraction Time? The movements of the planetary system symbolised in the phrase, "the eternity of years," may conceivably bring about such changes in the molecular movements of bodies, that effects now observed under the present conditions of movement will no longer be observable; but this only on the supposition of a corresponding change in the conditions; and for this supposition we do not need to invoke eternity, or the abstraction Time: we see *such* interruptions of the uniformity of Nature under the present variableness of conditions.

I have ventured to re-open this question because the objection, that I do not take into account the possibility that Time may be a condition in causation, has been urged by Professor Clifford, Mr. Pollock, and Professor Bain; and urged by such writers it ought not to be left unanswered. Perhaps I do not rightly seize their meaning; at any rate the readers of MIND have here a topic on which to exercise their ingenuity; and some one of them may see how the question admits of settlement.

GEORGE HENRY LEWES.

Space through Sight and Touch.—Our habitual thoughts of space are all associated with sight, yet since the time of Berkeley it has been the general belief that the conception of space has been originally derived altogether from touch. I think this is not only true, but as nearly a demonstrated truth as the nature of the case admits of, and the proof that I think conclusive is as follows:—

A being with no sense except sight, and no power of locomotion, might acquire a conception of space, but it would be very unlike space as we conceive it. It would be space of two dimensions only, there would be nothing to indicate distance between the eye and any object: all things would be seen projected on a sphere as we see the heavens, and all magnitudes would appear angular. If then such a being afterwards acquired powers of touch and motion, it would acquire the conceptions of a third dimension in space and of linear extension; but angular magnitude would always continue more familiar to its thoughts than linear, and it would think of extension, both superficial and solid, in terms of polar rather than rectilineal co-ordinates.

On the contrary, a being with the sense of touch and the power of motion, but without the sense of sight, would learn to think of space in terms of rectilineal rather than polar co-ordinates; and if it were afterwards to acquire the sense of sight it would still retain the same habit of thought.

We may infer the latter to be our case: we spontaneously think of space in terms of rectilineal co-ordinates. No one has any clear idea of the meaning of angular magnitude until he has received his first lesson in geometry; and to any one whose ideas on the subject are purely spontaneous, it will appear not a simple geometrical truth, but an utter absurdity, that neither a straight line nor a plane surface can become an object of sight. (See *Reid's Geometry of Visibles.*) Moreover, common language abounds in words expressive of the relations of space in terms of rectilinear co-ordinates: such words as above, below, before, behind, right, left, inch, and mile; while such words as angle, degree, altitude, and azimuth, which express the relations of space in terms of polar co-ordinates, belong to technical and scientific language. Although we have no means of recalling the process by which either the individual or the race originally acquired the conception of space, these facts seem conclusively to prove that it must have been through touch rather than through sight.

JOSEPH JOHN MURPHY.

The Gratification derived from the infliction of Pain.—In his new edition of *The Emotions and the Will*, Professor Bain repeats his conviction that in Anger there shows itself "an impulse knowingly to inflict suffering upon another sentient being, and to derive a positive gratification therefrom" (p. 177). He also adds, for the first time I believe, in discussing the sentiment of Power, (p. 195), that "the pleasure of power in its coarsest and brutal form . . . is the pleasure of putting others to pain," so that the two feelings of anger and power are "at bottom almost identical." At the same time he rejects Dugald Stewart's notion that cruelty is resolvable into an abuse of power, and holds that we may just as easily make malevolence the basis of the delight of power (p. 195). [The exposition of Power follows that of Anger in the present edition instead of preceding it as in the earlier edition.] That is to say, while Mr. Bain admits the close connection of the two sentiments of Malevolence and Power, he does not allow that the former can be derived from the latter, but maintains on the contrary that the pleasure found in inflicting pain rests on a primordial form of emotional susceptibility, namely, "the fascination for the sight of bodily infliction and suffering" (p. 178). Now it seems to me that by help of the hypothesis of Evolution this curious mode of gratification may still be shown to be derivative. That there is a certain fascination in the spectacle of another's suffering, even to humane persons, does not show that the suffering gives *pleasure*, any more than that certain forms of the ugly, the monstrous, and the terrible, can be said to be pleasing because they exert a spell on the spectator. All these effects of fascination seem to me to be *painful*, the action of watching the particular objects being largely involuntary, though it is possible that the repeated recoils from the painful object with the intervening moments of relief afford a state of mental excitement which people not troubled by kind feelings would sometimes care to seek. At the same time there is without doubt a very distinct ingredient of pleasure obtained by most, if not all, persons in *inflicting* pain under certain circumstances, and it seems probable that the intense pleasure which brutal persons derive from the mere spectacle of suffering may be a reflection from this. The spectator conceives himself more or less distinctly as taking part in the actual infliction of the suffering he witnesses. The problem then becomes: whence arises the intense pleasure found in the infliction of Pain?

From the evolutionist's point of view, there is much to be said for Stewart's hypothesis that the pleasure of malignity springs from the emotion of power. We may perhaps conceive the simplest mode of the gratification of power as arising from success in capturing prey or in triumphing over rivals, in which cases there is something more than a feeling of relief at the mere deliverance from harm. The lower animals exhibit very distinctly a capacity for this form of enjoyment. A cat's pleasure in prolonging the life of its victim seems to be due to a desire to extend and renew this simple form of the delight of power. On the other hand it is doubtful whether the lower animals derive any gratification from the conscious infliction of pain. We may imagine perhaps that the capacity for this enjoyment was developed in some early predatory stage of human history, when the sentiment of power, as a feeling of triumph in combat, had attained a considerable development, and intelligence had reached a certain height. The impulse to inflict pain (as distinct from killing or maiming, that is, rendering powerless or harmless) might grow up somewhat in the following way. First of all the infliction of pain would gradually become firmly associated with the weakening of a dangerous adversary, since pain is one of the surest means (short of total destruction which is often impossible or undesirable) of securing freedom from future attack. In this manner the disposition to cause suffering in an adversary would be sustained by the deep-rooted instinct of self-defence. In the second place, at this stage of mental development the sentiment of power would lend a strong support to the impulse of tormenting. For in all kinds of combat it would be seen that avoidance of pain is the thing specially aimed at in defence, and so the infliction of pain would naturally present itself as a striking effect and proof of superiority. Not only so: in this stage of intelligence a man would begin to look on voluntary submission in a defeated rival as an equivalent for complete physical prostration. The appropriate objects of the emotion would now be all signs of dread and of a readiness to submit in the person calling forth the feeling. Now pain is the natural precursor of dread, and hence the infliction of pain would, by association, acquire the pleasurable aspects of dread and servile cringing. Thus both the earlier instinct of self-defence, which seems to be the first ingredient in destructive anger, and also the later offshoot of power would unite to give a special value to all signs of pain inflicted on an aggressive foe or on an inconvenient rival. Does it not seem probable that the whole pleasure of inflicting pain, apart from the mere mental excitement already spoken of, is really due to these sources? This conclusion appears to be supported by the fact that the impulse of cruelty is invariably accompanied by some unmistakable form of the emotion of power. The boys who find the keenest delight in impaling moths and cockchafers and in tormenting cats are always those who, provided they are strong enough, hector it most loudly, and who love most to bully others into abject submission.

JAMES SULLY.

Anticipation of Mill's Theory of Syllogism by Locke.—Perhaps the most striking chapter in J. S. Mill's *Logic* is that in which he contends against the usual account of the nature and value of Syllogism, as propounded by Archbishop Whately and others. It is hardly necessary that I should do more than recapitulate the heads of his argument to any reader of MIND. All inference, he concludes, is from particulars to particulars, and he gives various illustrations of discoveries by practical men and of the everyday inferences of life where no general proposition intervenes. General propositions are merely registers of such inferences, and are of no actual use in making the inferences, but are convenient formulæ for making more, and are moreover useful as offering a larger object to the imagination than any singular proposition (which I think false), and as likely to show the falsehood of an inference more clearly by comprising many particulars some of which may contradict our previous knowledge. The interpreting of our own registers is, however, not a strict process of inference; and syllogism is really an inference from particulars to particulars, authorised by a previous inference from particulars to generals (which again is based on inference from particulars to particulars) and substantially the same with it.

In the earlier editions of his *Logic*, Mill distinctly announced this theory as new, but subsequently modified this claim and admits the assertion of Sir J. Herschel (*Essays*, p. 367) that it was substantially anticipated by Berkeley. It seems strange that all the critics of the theory should have passed over the much more precise and explicit anticipation in Locke's *Essay*, which was of course in this matter the source of Berkeley's remarks. But Locke is an author much more quoted and criticised than read in England, and I do not know that his great and suggestive book is anywhere else made a text-book now, as it is in Dublin. The prominence of Locke in our university course makes us wide-awake, not only to the false criticisms of his system which are widely prevalent, but to the many professed discoveries which are plainly indicated long ago in his famous work. But a stray suggestion cannot be fairly called an anticipation. Here the prior claims of Locke rest on no such insecure basis. Any one who will take the trouble to read Locke's *Essay* bk. IV., chaps. 7, § 11, and 17, §§ 4-8, will find Mill's whole theory clearly and explicitly laid down. I will quote the substance of some of the leading passages. "Would those who have this traditional admiration of general [maxims], that they think no step can be made in knowledge without a general maxim or axiom, but distinguish between the method of acquiring knowledge and that of communicating, they would see that these general maxims were not the foundations on which discoverers raised their structures. Though afterwards, in the schools, teachers often made use of these self-evident propositions to convince their scholars of truths in particular instances that were not so familiar to their minds as those general maxims already inculcated, and carefully settled in their minds. Though these particular instances, when well reflected on, are no less self-evident to the understanding than the general maxims brought to confirm them; indeed it was in these particular instances that the discoverers found the truth, without the help of maxims." (IV, 7, § 11.) General propositions may now be of use, because the very naming of them satisfies us, when we are once accustomed to use them. "But before custom has settled this, I am apt to imagine it is quite otherwise, and that the child, when part of his apple is taken away, knows it better in that particular instance, than by this general proposition: the whole is equal to all its parts; and that if one of these had need to be confirmed to him by the other, the general has more need to be let into his mind by the particular, than the particular by the general. *For in particulars our knowledge begins, and so spreads itself by degrees to generals. Though afterwards the mind takes the quite contrary course, and having drawn its knowledge into as general* propositions as it can, makes these familiar to its thoughts, and accustoms itself to have recourse to them. Hence it comes to be thought in time, that more particular propositions have their truth and evidence from their conformity to these more general ones." (Ibid). This principle, that we reason from and about particulars, is more fully expounded in ch. 17, § 8, where he goes so far as to say: "Universality is but accidental to our knowledge, and exists only in this, that the particular ideas about which it is are such as more than one particular thing can correspond with and be represented by." He even denies the necessity of any general proposition in a syllogism—a very questionable position. Thus all the essentials of Mill's theory, and the steps into which he divides our inferences, seem clearly anticipated. The very illustrations at times seem to be analogous, the village matron with a sick child in Mill corresponding to the country gentlewoman recovering from a fever in Locke.

There are, of course, some developments in Mill's arguments which are not in Locke, but there is no difference of attitude, save that of greater tenderness to syllogism in Mill and the admission that it may be useful to a careful thinker in testing and verifying the accuracy of his own reasoning. Locke on the other hand looks upon it as of no use whatever to the discoverer, but only to the controversialist or teacher, and seems to deny that it is in any way useful in promoting discovery. I fancy Locke is right, but, however that may be, syllogism was such a public nuisance in his day that we may well excuse him from feeling so strongly on the point, whereas to Mill it could not possibly appear so dangerous or so mischievous. The physical sciences had been too long and too well worked without any reference to it, to make Archbishop Whately's resuscitation of its claims at all likely to mislead us.

It seems worth while to point out this anticipation, not for the purpose of lessening the great and permanent merits of J. S. Mill, but as a point of interest in the history of Philosophy.

J. P. MAHAFFY.

XII.—CORRESPONDENCE.

BRENTANO'S LOGICAL INNOVATIONS.

IN your first number Professor Flint, while criticising Brentano's recent work on Psychology, gives a few specimens of that author's discoveries in Logic well calculated to awaken, as he says, the most lively curiosity. Whatever the forthcoming special treatise may add to our knowledge of the new theory proposed, enough is said in his *Psychologie* to enable us to understand its principles. Allow me, as one who has examined these as soon as published, to offer the following remarks.

It will hardly be necessary to mark the passages of Mill's writings which may have led the Austrian Professor to his starting-point. Let me observe at once that the main feature of his reconstruction of logical doctrine consists in reducing all categorical propositions to what he calls existential propositions, doing away with the familiar distinction between subject and predicate terms. Where we say *Some man is sick*, he gives as a substitute, *There is a sick man.* Instead of *No stone is alive*, he puts *There is not a live stone.* On the other hand, he proposes to improve on the statement *Some man is not learned* by welding together the negative and the predicate term, and asserting *There is an unlearned man.* Finally, *All men are mortal* is to be expressed in his system *There is not an immortal man.* That is to say, he simply affirms or denies the existence of some object having either two positive qualifications, or one positive together with one negative.

Evidently, the order in which we mention those qualifications can make no difference. It is exactly the same, whether I maintain the existence of a *sick man* or that of a *human patient*; whether I refuse to admit that an *immortal man* or that a *human immortal* is a reality. This is what Brentano means, when he announces as one of his discoveries, that "any categorical proposition is liable to simple conversion"—a theorem which, taking words in their ordinary technical significance, could not be maintained for a moment.

Moreover, we see that, wherever we used to offer an opinion touching a whole class, the new propositions offer a denial of existence; so that, what Brentano calls a negative, is meant only for what we were taught to consider a universal proposition, and his affirmatives are the particular propositions of everybody else. Also, where the predicate term of the old Logic designed a positive quality, we get in certain cases a negative quality instead, merely by translation into the new formulæ. It may be shown that in every kind of lawful syllogism, when thus translated, one of the three terms is dissected into a positive term and its corresponding negative. Hence his series of startling declarations, which owe the whole of their apparent novelty to a tacit change in the use of time-honoured technical expressions.

Of more serious import is the condemnation passed upon all inferences from either one or two universal propositions to a particular one. No doubt, when we remember that by the new system the former are turned into assertions of non-existence, it is clear that no accumulation of mere non-existences can vouch for the existence of anything; and so, from his point of view, Brentano is certainly right. However, we seem to touch here upon a curious discovery. The self-same facts which, stated in the usual manner, can be shown to involve certain other facts, would appear *not* to involve the latter as soon as stated in the new style. Before admitting such a paradox, logicians are bound to inquire whether Brentano's formulæ are really, as he assures us, the exact equivalents of the traditional four sorts of categorical propositions. And they will find, that in translating categorical universals into existential negatives, part of the meaning is dropt by the way, and precisely that part on which the condemned logical operations depend.

In an ordinary proposition the subject is necessarily admitted to exist, either in the real or in some imaginary world assumed for the nonce. It is further maintained either to admit or not of the qualifications comprehended in the predicate term. Accordingly, in the former case, the predicate term also is asserted to have its representative in that world in which we admit the subject to be. Whereas, in the case of a negative, it is not decided whether there be anything answering to the predicate term. *Ulysses is the son of Laertes* means nothing at all, unless we suppose Ulysses as existing at least in a world of fiction; and so it is with the proposition *Ulysses is not the son of Priam*; but in the latter instance it remains undecided whether there be (in the same assumed world) any son of Priam. For aught we learn from this proposition, Priam might have been a childless man through life. Again, *Bucephalus is not a winged horse* presupposes the existence of Bucephalus in some world, but does not assert that of a winged horse. Nor does it appear from *Bucephalus is not an Arab* that a race of Arabs is acknowledged to exist.

By disregarding, as Brentano and others do, the difference between the subject term and the predicate term, we lose an advantage even where we judge only of a part of a class. The proposition *Some children of Jupiter are mortals* proceeds from the existence of Jupiter's children (to wit, in the world of classical mythology); and so the class of *mortals*, to which it is implied they belong, is also thought of as continued into that assumed world. After this, we may infer *Some mortals are children of Jupiter*, because our first proposition has prepared us to extend the dominion of the term of *mortal* in that way. But he who begins with the latter statement appears to start from the common notion of mortals as belonging to the real world, and to attribute the same reality to Jupiter and his paternal function. By treating Conversion as a kind of inference, we retain the advantage of knowing at the outset the ground we move on. Whereas Brentano's comprehensive sentence, *There is somebody who is at the same time a mortal and a child of Jupiter*, leaves us in the dark about the order of things which it concerns.

Turning to propositions touching the whole of a class, our loss becomes heavier still. When we say *No stone is alive*, or *All men are mortal*, we presuppose the existence of stones or of men. Nobody would trouble himself about the possible properties of purely problematical men or stones. Brentano thinks he gives the exact equivalent of those sentences when he maintains *There is not a live stone*, or *There is not an immortal man*, which may be true even if there be no stone or man whatever. No wonder, when one takes away the supposition which every judgment treated by common Logic involves, that the residue cannot yield all the conclusions to which one was entitled by the premisses in their original state.

Brentano had caught a glimpse of the difference between his existential and the old categorical propositions when he touched upon the theory of Herbart (as given by Drobisch, *Logik*, 3rd ed., § 55), that the subject in the latter is presupposed (*vorausgesetzt*). Unluckily, Drobisch adds in the same breath that the subject is not put forward unconditionally (*nicht unbedingt gesetzt*), and, that the meaning only is, that if the subject be assumed, the predicate applies to it (*dass, wenn man das Subject setzt, ihm das Prädicat . . . zukommt*). In opposition, Brentano calls it a strong, and even an impossible demand, to ask belief for the doctrine that the sentence *Some man walks* contains the tacit clause *provided there be a man at all*. Both authors appear to confound what is properly called a presupposition (*Voraussetzung*) with a mere condition (*Bedingung*). At least, Drobisch has not sufficiently guarded against such a construction of his words, and Brentano takes them in that sense. The person who tells me *Some man walks* would seem, according to the former, to make his opinion dependent on the contingency of the existence of man; this the latter refuses to admit, and so far he is right. On the contrary, such a person, by pronouncing about some man's actual condition, professes to be convinced in his own mind that the question of existence has been settled, or may be settled at any time, to his and his interlocutor's perfect satisfaction. This he *presupposes*, that is to say, he considers the statement about the existence as a separate one, to be tried outside of the proposition in hand, which latter starts from it, and deals only with some qualification of the subject. Hence it is quite possible for two different opponents to direct their attacks, one against the existence of the subject presupposed, and the other against the description of that subject given by the proposition itself. A close examination of the traditional inferences which our author rejects would have taught him that they derive their value from the presuppositions implied, and that the absence of the latter constitutes a material difference between the categorical propositions in common use, and the existential ones into which he pretends to translate them without any change of meaning (*ohne irgend welche Aenderung des Sinnes*).

There is no need to dwell upon his anticipations of the horror and dismay with which his doctrines will be received among logicians of the older school. They will suspect at once some such tampering with the names of things, and misunderstanding of the import of common forms of thought, as I have just pointed out. As soon as they find that such are the merits of the new theory, they will cease wondering, and simply ask *cui bono?*

Certainly the purpose of Logic is served by turning its subject-matter in all directions, and examining it from every point of view. We may be thankful for any new system, provided always it do not give out as a refutation of traditional precepts what is only a re-arrangement of old truths. With this restriction it is possible that Brentano's promised treatise will throw additional light on some questions. Nevertheless, at all events, it will have the disadvantage which we least expect from an empirical psychologist, of trying to replace a more natural theory by an artificial one.

For instance, when we think all men to be mortal, we proceed from a notion of man acquired before, and maintain (say by generalisation from experience) that in every object answering to this notion the character of mortality exists also. Afterwards, occasion serving, we find that we have made it impossible for us, as long as we hold the same opinion, to assert the existence of an immortal man. It may be that we never in our lives speculate upon the supposition of such a being. Brentano would have us think of this supposition first of all, and reject it at once. But we could hardly reject it without a reason, and the most obvious one is our persuasion that all men we know of, and therefore all beings we recognise as men, are liable to die. To speak generally, strong proofs are wanted to make it plausible that any denial can arise in the mind except as opposed to an affirmation touching the same matter conceived before. In the genesis of our convictions, belief comes in earlier than negation. Nor does induction naturally proceed from warding off a particular proposition to adopting its contradictory universal, but from admitting the former to judging alike of the entire class.

Leyden, Feb. 1, 1876. J. P. N. LAND.

MR. HODGSON ON MR. LEWES'S VIEW OF PHILOSOPHY.

Of Mr. Hodgson's five ways of distinguishing between Philosophy and Science (MIND, I., pp. 68, 69), the fourth is assigned to Mr. Lewes in these words: "A position may be taken up which ascribes to philosophy as its special work, besides the co-ordination and systematisation of the second head, a negative task—the task of disproving and keeping out of science all ontological entities, whether these appear merely as spontaneous products of the uncorrected imagination, or have been reduced into systems, such as for instance the Hegelian." Now this statement of Mr. Lewes's attitude towards Philosophy seems to me very inadequate. Take, for example, the following passage in *Problems of Life and Mind*, II., p. 223:—"Now, since we find in common discourse the constant recurrence of Matter, Force, Cause, Mind, Life, &c., it is obvious that these symbols condense and represent certain experiences, into which they may be re-interpreted; and the purpose of the metaphysician is to analyse them, to show what are the experiences condensed and represented, by what logical processes the condensation takes place, and what real validity is to be assigned to the symbols. This is only to be effected by the aid of Psychology—an aid contemptuously rejected by ontologists, who probably divine that analysis so conducted would be fatal to their pretensions. When the Psychologist has shown that all the elements of experience condensed in these symbols are reducible to terms of Feeling, &c." It is evident here that Mr. Lewes considers philosophic treatment of the ultimate generalisations of science to be more than a mere systematisation and co-ordination of them, more even than a negative criticism of them with a view to eliminating all their transcendental, or what he calls metempirical, elements: that treatment includes, with him, *re-interpretation and analysis.* Equally evident is it that Mr. Lewes holds it to be the philosopher's work to aim at reducing the ultimate generalisations of science—Cause, Force, Life, Mind, &c.—to *terms of Feeling.* Many other passages besides, to be found here and there in the *Problems*, can fairly be interpreted thus, and do not seem to me to be fairly capable of any other interpretation. Mr. Lewes is by no means prepared to accept the ultimates of science as they come from the hands of the specialists who have reached them, and who (for quite sufficient reasons) agree to stop short there. According to him, these conclusions must themselves submit to further analysis, they must allow themselves to be expressed in terms of Feeling, they must consent to take their place as special modifications of the highest generalisation possible or conceivable—the ultimate of ultimates, Consciousness.

Nor is it only in separate passages that Mr. Lewes gives expression to this view of philosophic work and scope: his position is even more clearly marked in his discussions on Matter and Force, *Prob.* IV., Force and Cause, *Prob.* V., and The Absolute in Feeling and Motion, *Prob.* VI. His treatment of these questions is very much more than a mere attempt at classification and co-ordination; it is a searching analysis, resulting in the conclusion that all the ultimates of the various sciences—even of the most objective—are finally reducible to forms of Consciousness: and this, if I mistake not, is Mr. Hodgson's own doctrine throughout his paper in MIND.

In one respect, however, Mr. Lewes would almost certainly differ from Mr. Hodgson as he has expressed himself oftener than once in the paper under discussion. He would not, I believe, allow that the above distinction between philosophy and science is sufficient to constitute a difference *in kind.* Philosophy, it is true, carries the analysis of the scientific notions to the very bounds of possibility, and, from the very nature of the process, gives great prominence to the subjective contributions made to all objective phenomena; but the Method is the same—it is still analysis; the contents are different—but they are still given in experience; the prominence is allowed to subjective aspects—but even these become objective in the very act of examining them. Regarded thus, Philosophy would indeed be entitled to call herself the science of sciences, because tracking the facts of consciousness to their innermost deeps, planting all the special sciences upon common ground, giving every objective phenomenon its highest validity by showing its indissoluble relation to that fact of facts—Self-consciousness. But its method would be strictly scientific all the same, since there is no other conceivable method of dealing with anything that can be properly called knowledge.

Arbroath, N.B. ALEXANDER MAIN.

XIII.—NEW BOOKS.

An Introduction to the Study of Logic and Metaphysics. By T. S. BARRETT. London: Provost & Co. 1875.

A readable little book (pp. 48) not detailed enough to bear out the promise of the title. The author contends for an extension of the scope of Logic in the spirit of Mill and Prof. Bain. He would define it as "The Science of the Conditions of Human Knowledge." Necessity is only to be found in the Principles of Consistency. The author adopts Hume's views of Causation. "Physical Science is really nothing but a collection and a classification of isolated but analogous facts."

System of Positive Polity. By AUGUSTE COMTE. Vols. I., II. London: Longmans & Co. 1875.

The first volume, translated by J. H. Bridges, M.B., gives the General View of Positivism, or outline of the main features of the system as a Religion based on a Polity, and the discussion of the cosmological and biological bases of Sociology. The second volume, translated by F. Harrison, M.A., contains Social Statics or the Abstract Theory of Human order. With the omission of the preface to the second volume, the original text is reproduced in translation unabridged. Marginal notes and Tables of Contents are added by the translators. Vols. III. and IV., completing the work, are announced to appear shortly.

Arthur Schopenhauer: His Life and his Philosophy. By HELEN ZIMMERN. London: Longmans & Co. 1876.

The author notes the fact that an Englishman, Mr. Oxenford, in the *Westminster Review* of 1853, was the first to assign Schopenhauer a place among the thinkers of the world. Since then his books have been widely read in Germany, and there is a growing curiosity in England to know more about the Philosophy of Pessimism. The author is no blind admirer, and faithfully depicts the character of the great καταφρονάνθρωπος. The book is mainly biographical, only two chapters out of the eleven being devoted to an account of the philosophy. We are told in the preface that "a translation of Schopenhauer's capital treatise is contemplated by an accomplished German scholar now resident among us." It is to be hoped that the *English* will be as readable as that of the present volume.

Philosophy without Assumptions. By T. P. Kirkman, M.A., F.R.S. London: Longmans & Co. 1876.

According to the author, the only starting-point for a philosophy without assumptions is that of Descartes — "I am a thinking being." Among the data of self-consciousness is the feeling of exerted energy which we designate Will. Will baffled reveals to us a sphere beyond self. What we term the "external world" is only unknown *x*, standing for so much restraint on personal activity. To call it "matter," thereby implying entity, is an assumption. Unextended force-loci are all that we have warrant for, or indeed require for life, theoretical or practical. What need of Atoms, seeing that the physicist treats their force as concentrated in a spaceless "centre of gravity?" The thinker believes that other minds exist from the absurdity of doubting the theorem. "All continued and consistent phenomenal indications of invisible consciousness, intelligence, and will, are verily to me demonstrations of the unseen verities indicated." At the moment at which the existence of other minds becomes certain to me, the feeling of moral obligation is born. Thus we obtain as unimpeachable verity, and guide to action, "I am, I will, I ought." The philosophy of consciousness can carry us no further, but rational inference leads us to Religion and Theism. "The Infinite is my Cause;" and it is agreeable to reason to believe that the sum of forces which antagonises all finite will-force is the manifestation of a self-revealing God. There is besides in the book much polemical matter (of an over-lively sort) directed against Mill, Mr. Spencer &c.

Christian Psychology: The Soul and the Body in their correlation and contrast. Being a new translation of Swedenborg's tractate "De commercio Animae et Corporis, &c." With Preface and Illustrative Notes. By T. M. Gorman, M.A. London: Longmans & Co. 1876.

The Preface and Illustrative Notes are to Swedenborg's tractate in the ratio of about ten to one. Quotations from a variety of sources, ancient and modern, occupy a large portion of a bulky volume. The author's design is apparently to show that "the philosopher of Stockholm" has anticipated the chief results of modern science and philosophy. Among recent depreciators of Swedenborg, he singles out for special animadversion two names not often found conjoined—Dr. Maudsley and Cardinal Manning.

The Sensualistic Philosophy of the Nineteenth Century, considered by Robert L. Dabney, D.D., LL.D. Edinburgh: T. and T. Clark. 1876.

The following are the chief topics of this book: Review of the Sensualistic Philosophy of the Previous Century; Sensualistic

Ethics of Great Britain; Positivism; Evolution-Theory; Spirituality of the Mind; *A-Priori* Notions; Refutation of Sensualistic Ethics; Philosophy of the Supernatural. While the author believes that Sensualism in Philosophy leads to Sensualism in life, it is not for that reason he uses the ambiguous term, but as having no better word to denote "that theory, which resolves all the powers of the human spirit into the functions of the five senses and modifications thereof." The author finds in the disregard of the facts of subjective consciousness the key to the aberrations of nineteenth century philosophers.

Théorie générale de la Sensibilité. Mémoire contenant les éléments d'une solution scientifique des questions générales relatives à la nature et aux lois de la sensation, à la formation et au rôle des organes de sens, à l'action de la sensibilité sur le développement physique et intellectuel de l'individu et de l'espèce, par J. DELBŒUF, Professeur à l'Université de Liége. Bruxelles: 1876.

The first part of this short treatise (pp. 107) discusses the theory of Sensibility; the second, that of Motility. Under the former head the limits of Sensibility are defined, and a parallel instituted between the laws of sensation and certain laws of physics. The speculations on the origin of the senses remind the English reader of Mr. Spencer, although the author's views have been worked out independently, the hypotheses being further illustrated by the imagined origin of fresh senses, as the "magnetic." The transition from sensation to perception is mediated by Motility. The sense of effort is the primary experience; but the idea of motion follows hard upon it, as with a mobile organism movement forms the sensible manifestation of the display of its force. The following distinctions are drawn: "Movement is habitual, when one causes it *without knowing how;* instinctive, when one effects it *without knowing why;* reflex or automatic, when the individual produces it *without knowing it.*" Automatism is the perfect expression of mental existence. "The Ego is for the sentient being that which procures it the same sensation each time its volition is the same."

Théorie Scientifique de la Sensibilité. Le Plaisir et la Peine. Par LÉON DUMONT. Paris: Germer Baillière, 1875.

In this work (which forms a volume of the International Scientific Library), the author seeks to determine more precisely than has yet been done the nature and conditions of pleasure and pain. It consists of two parts, a general analysis and a special synthesis. In the former the author arrives at his general conception of pleasure and pain, as the accompaniments of an increase or a decrease of the *ensemble* of forces constituting the ego. This view is distinguished from previous theories; among others from that of Professor Bain, on the ground that when pleasure is made to depend on an increase of the vital *functions* there is really implied an expenditure, that is a loss, of force. In the second part, the author with the help of his principle makes a careful study of the various forms of pleasure and pain, giving special attention to the æsthetic pleasures. His theory of the ludicrous, which he had already expounded in a separate volume, is, perhaps, the most remarkable feature in this synthesis.

Le Positivisme, par ANDRÉ POEY. Paris: Germer Baillière, 1876.

This is the first of a series of works intended to popularise Positivism. The author has been an attentive student of the Positive Philosophy since 1855, but did not see his way to accepting the Religion and Polity till 1871. He has made his scientific reputation by several publications on meteorology, having prosecuted that science for many years in the United States and Mexico; and now, having obtained sufficient leisure, he is in a position to carry out his long-cherished design of helping the world to a better understanding of the work of Comte. In the present volume, reviewing the labours of Darwin and Haeckel and the psychophysical researches of Wundt, Fechner and others, he claims for Comte a fore-feeling, when not a fore-sight, of the doctrines of biological evolution and of the quantitative expression of mental facts.

Studien über die Volksseele, von EDUARD REICH. Jena, 1876.

The object of this volume is to illuminate the laws of life and mind by a comparison of social statistics derived from the most varied sources, and a careful survey of the physical conditions of well and ill-being. The author's conclusion of the whole matter runs thus: "In the last resort all welfare depends on the constitution we inherit from our forefathers and shall transmit to our descendants, and on right conduct during the whole of life. The corner-stone on which the weal of the national soul rests, and on which the temple of all real good of heart and mind must be seated, is the care of physical health (*Gesundheitspflege*)."

Das Leben der Seele, von Prof. Dr. M. LAZARUS. Zweite, erweiterte und vermehrte Auflage. Bd. I. Berlin, 1876.

The first edition of this work was published in 1855. It consists of a series of monographs on important psychological questions. The contents of the present volume are "Culture and Science," "Honour and Glory," "Humour," "On the Relation of the Individual to the Whole." The work is much more than a classification and description of phenomena; it is an attempt, in language adapted to the understanding of all educated readers, to get at the conditions and general principles of the phases of mental life passed in review by the author. In Psychology, the author sees a science yet in its early youth, but destined one day to fulfil the aspirations of Herbart in having a Static and Dynamic strictly mathematical.

Die Grundsätze der reinen Erkenntnisstheorie in der Kantischen Philosophie. Kritische Darstellung von AUGUST STADLER. Leipzig, 1876.

A searching examination of Kant's Principles of the Pure Understanding, with special reference to the following points: the content of each principle, the propriety of its assumption, and their combined worth and effect in the process of knowledge.

Philosophie als Denken der Welt gemäss dem Princip des kleinsten Kraftmasses. Prolegomena zu einer Kritik der reinen Erfahrung von Dr. RICHARD AVENARIUS. Leipzig, 1876.

The writer of this fresh and highly suggestive little work (80 pp.) sets out with the principle that mental life in its connection with organic life, as a whole, is determined to certain ends (*zweckmässig*), and that as a consequence of this its operations are invariably carried out in that particular way (among all possible ways) which involves the least expenditure of energy. The author here applies this conception of mental work solely to intellectual operations, and particularly to the process of "theoretic apperception," by which is understood the interpretation of presentations by a subsumption of the same under pre-existing concepts derived from previous perceptions. This apperception of objects and events by means of general concepts representing what is already known is, he maintains, the performance of a larger amount of work with the same expenditure of energy, and the impulse to bring our presentations under such general concepts (*begreifen*) illustrates the manner in which our mental life is controlled by the need of husbanding energy to the utmost. Philosophy is regarded by the author as consisting solely in an attempt to grasp the elements of experience under the comprehensive concepts. A necessary concomitant of this process is the purification of experience, that is the determination of the net result of the actually known, after eliminating the suppositions which have their origin in the naive modes of conception of the undisciplined intelligence (anthropomorphic conceptions, &c.). In this way the ideas of substance, force, causality, and necessity will be expelled as met-empirical (to use Mr. Lewes's happy expression). Experience will thus be reduced to two factors, Sensation and Motion, of which the former is to be regarded as the content of all existence, the latter as its form.

Optimismus und Pessimismus. Der Gang der christlichen Welt- und Lebensansicht, von Dr. W. GASS. Berlin, 1876.

The rival theories of Optimism and Pessimism occupy at the present time the minds of Germany to an extent we in England hardly appreciate. In the above-named treatise the theories are compared by a liberal-minded theologian. The writer decides in favour of Optimism, though after no unfair treatment of the opposite system. "Whoever looks upon life only as a cycle becomes Pessimist: he who considers it only as progress, becomes a superficial enthusiast or progressionist. The more earnest Optimism has to insert the first view into the second, and must accordingly recognise that progress passes through the difficulties of the cycle."

W. C. COUPLAND.

XIV.—NEWS.

Don José del Perojo's work, *Ensayos sobre el Movimento Intelectual en Alemania*, mentioned above (p. 277), consists of seven essays in all, four of them being specially philosophical, viz., on Kant, Schopenhauer, Professor Wundt, and Anthropology and Naturalism as represented by a number of writers (including, outside of Germany, Mr. Darwin and Professor Huxley). The young author, besides being engaged in the translation of Kant's works, has with great enterprise recently founded a fortnightly periodical, the *Revista Contemporánea* (128 pp.), which, with original contributions by Spaniards, gives translations of articles selected from foreign reviews, &c. Philosophy figures prominently in its pages.

It is proposed to erect a statue to Spinoza at the Hague on the occasion of the bi-centenary of his death, to be celebrated in February next. The statue will be erected, if possible, in sight of the spot on the Paviljoensgracht, where the philosopher dwelt in the last ten or twelve years of his life. An influential committee has been formed in Holland, with honorary members in other countries. Principal Tulloch, Professors Bain, Clifford, Huxley, Jowett, Max Müller, Tyndall, Dr. J. Hutchison Stirling, Messrs. W. E. H. Lecky, G. H. Lewes, F. Pollock, Herbert Spencer and W. Spottiswoode represent this country. Subscriptions are being received by Mr. F. Pollock, at 5, New Square, Lincoln's Inn, W.C., and by Dr. J. H. Stirling, at 4, Lavrock Bank, Trinity, Edinburgh. About £2000 are required.

Another philosophical martyr will also have a memorial. A monument is spoken of for Giordano Bruno at Rome, where he was burnt by the Inquisition on the 17th February, 1600.

The centenary of Herbart's birth will be celebrated on the 4th of May, at Oldenburg, where he was born.

Some of the German papers published lengthy biographical notices of Joseph Görres on occasion of the observance of the centenary of his birth, on 24th January last, by the Ultramontanes of the Rhine provinces. In Görres the instincts and temper of the philosopher were constantly overborne by the enthusiasm of the zealot, and under the changing circumstances of the age in which he lived he was always being drifted from his moorings. He began public life as a Jacobin, and ended it in 1848 as an Ultramontane of a very pronounced type, having passed through the Constitutionalist phase in the middle. It is, of course, in his latest "phase of faith" alone that he has recently been honoured, but it would not be hard to show that even at the last he was not really in harmony with the reigning principles of Ultramontanism. In Hegel's *Vermischte Schriften* there is a good review of his chief work, *Die Grundlage der Weltgeschichte.* The English reader will find a brief notice of his philosophical views in Professor Flint's *Philosophy of History*, vol. I.

According to the *Revue Philosophique*, M. Renan is engaged on a new work, in three parts, to be entitled *Dialogues Philosophiques.* The first part (very short) will set forth all that can be regarded as certainly established in philosophy. The second will contain probabilities, inductions and surmises. The third (the longest) will open up "the region of dreams"—of aspirations and hopes.

A "Society for the Development of the Science of Education" has lately been formed. It proposes generally to "examine, systematise, and propound definite and verifiable principles upon which the practice of education should be based." The committee has been engaged in drawing out a detailed scheme of work, which will shortly be published, when it is hoped that branches will be formed for carrying on investigation simultaneously in different places on a uniform plan. One part of the Society's work will consist in recording all psychological facts having a bearing on Education. Communications relating to the nature, objects and plans of the Society should be addressed to Mr. C. H. Lake, Withernden, Caterham, Surrey.

The trustees of the late Dr. Andrew Bell, founder of Madras College, in St. Andrews, offered some time ago £6000 to found a chair of the Theory, History and Practice of Education in the University of Edinburgh, and £4000 to found a similar chair in the University of St. Andrews. Both Universities having accepted the offer, the trustees have recently presented to the Edinburgh chair Mr. Simon S. Laurie, author of a work on Ethics, and to the St. Andrews chair Mr. John M. D. Meiklejohn, well known as the translator of Kant's *Kritik der reinen Vernunft.* Mr. Laurie was secretary to the Endowed Schools Commission for Scotland, and Mr. Meiklejohn an assistant-commissioner.

The chair of Moral Philosophy in the University of St. Andrews has become vacant by the appointment of Professor Flint to the Chair of Divinity in Edinburgh. The appointment to the St. Andrews professorship rests with the University Court, a body of six, headed by the Lord Rector, who is at present Dean Stanley.

Professor W. S. Jevons having been appointed to the chair of Political Economy in University College, London, vacates his chair of Logic, Moral Philosophy and Political Economy in the Owens College, Manchester.

The next number of MIND will contain an article by Professor Helmholtz on the foundations of Geometry. The series of articles on Philosophy at the Universities will be continued by Mr. W. H. S. Monck, writing on Dublin.

No. 3.] [July 1876.

MIND

A QUARTERLY REVIEW

OF

PSYCHOLOGY AND PHILOSOPHY.

I.—THE ORIGIN AND MEANING OF GEOMETRICAL AXIOMS.

My object in this article* is to discuss the philosophical bearing of recent inquiries concerning geometrical axioms and the possibility of working out analytically other systems of geometry with other axioms than Euclid's. The original works on the subject, addressed to experts only, are particularly abstruse, but I will try to make it plain even to those who are not mathematicians. It is of course no part of my plan to prove the new doctrines correct as mathematical conclusions. Such proof must be sought in the original works themselves.

Among the first elementary propositions of geometry, from which the student is led on by continuous chains of reasoning to the laws of more and more complex figures, are some which are held not to admit of proof, though sure to be granted by every one who understands their meaning. These are the so-called Axioms; for example, the proposition that if the shortest line drawn between two points is called straight there can be only one such straight line. Again, it is an axiom that through any three points in space, not lying in a straight line, a plane may be drawn, *i.e.*, a surface which will wholly include every straight line joining any two of its points. Another axiom, about which there has been much discussion, affirms that through a point lying without a straight line only one straight line can be drawn parallel to the first; two straight lines that lie in the same plane and never meet, however far they may be produced, being called parallel. There are also axioms that determine the number of dimensions of space and its surfaces, lines and points, showing how they are continuous; as in the propositions, that a solid is bounded by a surface, a surface by a line and a line by a point, that the point is indivisible, that by the movement of a point a line is described, by that of a line a line or a surface, by that of a surface a surface or a solid, but by the movement of a solid a solid and nothing else is described.

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* The substance of the first half of the article has been previously expounded by me, in the *Academy* of Feb. 12, 1870. It is here set forth anew as necessary context.

Now what is the origin of such propositions, unquestionably true yet incapable of proof in a science where everything else is reasoned conclusion? Are they inherited from the divine source of our reason as the idealistic philosophers think, or is it only that the ingenuity of mathematicians has hitherto not been penetrating enough to find the proof? Every new votary, coming with fresh zeal to geometry, naturally strives to succeed where all before him have failed. And it is quite right that each should make the trial afresh; for, as the question has hitherto stood, it is only by the fruitlessness of one's own efforts that one can be convinced of the impossibility of finding a proof. Meanwhile solitary inquirers are always from time to time appearing who become so deeply entangled in complicated trains of reasoning that they can no longer discover their mistakes and believe they have solved the problem. The axiom of parallels especially has called forth a great number of seeming demonstrations.

The main difficulty in these inquiries is and always has been the readiness with which results of everyday experience become mixed up as apparent necessities of thought with the logical processes, so long as Euclid's method of constructive intuition is exclusively followed in geometry. In particular it is extremely difficult, on this method, to be quite sure that in the steps prescribed for the demonstration we have not involuntarily and unconsciously drawn in some most general results of experience, which the power of executing certain parts of the operation has already taught us practically. In drawing any subsidiary line for the sake of his demonstration, the well-trained geometer asks always if it is possible to draw such a line. It is notorious that problems of construction play an essential part in the system of geometry. At first sight, these appear to be practical operations, introduced for the training of learners; but in reality they have the force of existential propositions. They declare that points, straight lines or circles, such as the problem requires to be constructed, are possible under all conditions, or they determine any exceptions that there may be. The point on which the investigations turn that we are going to consider is essentially of this nature. The foundation of all proof by Euclid's method consists in establishing the congruence of lines, angles, plane figures, solids, &c. To make the congruence evident, the geometrical figures are supposed to be applied to one another, of course without changing their form and dimensions. That this is in fact possible we have all experienced from our earliest youth. But, when we would build necessities of thought upon this assumption of the free translation of fixed figures with unchanged form to every part of space, we must see whether the assumption does not involve some presupposition of which no logical proof is given. We shall see later on that it does contain one of most serious import. But if so, every proof by congruence rests upon a fact which is obtained from experience only.

I offer these remarks at first only to show what difficulties attend the complete analysis of the presuppositions we make in employing the common constructive method. We evade them when we apply to the investigation of principles the analytical method of modern algebraical geometry. The whole process of algebraical calculation is a purely logical operation; it can yield no relation between the quantities submitted to it that is not already contained in the equations which give occasion for its being applied. The recent investigations have accordingly been conducted almost exclusively by means of the purely abstract methods of analytical geometry.

However, after discovering by the abstract method what are the points in question, we shall best get a distinct view of them by taking a region of narrower limits than our own world of space. Let us, as we logically may, suppose reasoning beings of only two dimensions to live and move on the surface of some solid body. We will assume that they have not the power of perceiving anything outside this surface, but that upon it they have perceptions similar to ours. If such beings worked out a geometry, they would of course assign only two dimensions to their space. They would ascertain that a point in moving describes a line, and that a line in moving describes a surface. But they could as little represent to themselves what further spatial construction would be generated by a surface moving out of itself, as we can represent what would be generated by a solid moving out of the space we know.

By the much abused expression "to represent" or "to be able to think how something happens" I understand—and I do not see how anything else can be understood by it without loss of all meaning—the power of imagining the whole series of sensible impressions that would be had in such a case. Now as no sensible impression is known relating to such an unheard-of event as the movement to a fourth dimension would be to us, or as a movement to our third dimension would be to the inhabitants of a surface, such a "representation" is as impossible as the "representation" of colours would be to one born blind, though a description of them in general terms might be given to him.

Our surface-beings would also be able to draw shortest lines in their superficial space. These would not necessarily be straight lines in our sense, but what are technically called *geodetic* lines of the surface on which they live, lines such as are described by a tense thread laid along the surface and which can slide upon it freely. I will henceforth speak of such lines as the *straightest* lines of any particular surface or given space, so as to bring out their analogy with the straight line in a plane.

Now if beings of this kind lived on an infinite plane, their geometry would be exactly the same as our planimetry. They would affirm that only one straight line is possible between two points, that through a third point lying without this line only one line can be drawn parallel to it, that the ends of a straight line never meet though it is produced to infinity, and so on. Their space might be infinitely extended, but even if there were limits to their movement and perception, they would be able to represent to themselves a continuation beyond these limits, and thus their space would appear to them infinitely extended, just as ours does to us, although our bodies cannot leave the earth and our sight only reaches as far as the visible fixed stars.

But intelligent beings of the kind supposed might also live on the surface of a sphere. Their shortest or straightest line between two points would then be an arc of the great circle passing through them. Every great circle passing through two points is by these divided into two parts, and if they are unequal the shorter is certainly the shortest line on the sphere between the two points, but also the other or larger arc of the same great circle is a geodetic or straightest line, *i.e.*, every smaller part of it is the shortest line between its ends. Thus the notion of the geodetic or straightest line is not quite identical with that of the shortest line. If the two given points are the ends of a diameter of the sphere, every plane passing through this diameter cuts semicircles on the surface of the sphere all of which are shortest lines between the ends; in which case there is an infinite number of equal shortest lines between the given points. Accordingly, the axiom of there being only one shortest line between two points would not hold without a certain exception for the dwellers on a sphere.

Of parallel lines the sphere-dwellers would know nothing. They would declare that any two straightest lines, sufficiently produced, must finally cut not in one only but in two points. The sum of the angles of a triangle would be always greater than two right angles, increasing as the surface of the triangle grew greater. They could thus have no conception of geometrical similarity between greater and smaller figures of the same kind, for with them a greater triangle must have different angles from a smaller one. Their space would be unlimited, but would be found to be finite or at least represented as such.

It is clear, then, that such beings must set up a very different system of geometrical axioms from that of the inhabitants of a plane or from ours with our space of three dimensions, though the logical powers of all were the same; nor are more examples necessary to show that geometrical axioms must vary according to the kind of space inhabited. But let us proceed still farther.

Let us think of reasoning beings existing on the surface of an egg-shaped body. Shortest lines could be drawn between three points of such a surface and a triangle constructed. But if the attempt were made to construct congruent triangles at different parts of the surface, it would be found that two triangles with three pairs of equal sides would not have their angles equal. The sum of the angles of a triangle drawn at the sharper pole of the body would depart farther from two right angles than if the triangle were drawn at the blunter pole or at the equator. Hence it appears that not even such a simple figure as a triangle can be moved on such a surface without change of form. It would also be found that if circles of equal radii were constructed at different parts of such a surface (the length of the radii being always measured by shortest lines along the surface) the periphery would be greater at the blunter than at the sharper end.

We see accordingly that, if a surface admits of the figures lying on it being freely moved without change of any of their lines and angles as measured along it, the property is a special one and does not belong to every kind of surface. The condition under which a surface possesses this important property was pointed out by Gauss in his celebrated treatise on the curvature of surfaces.* The "measure of curvature," as he called it, *i.e.*, the reciprocal of the product of the greatest and least radii of curvature, must be everywhere equal over the whole extent of the surface.

Gauss showed at the same time that this measure of curvature is not changed if the surface is bent without distension or contraction of any part of it. Thus we can roll up a flat sheet of paper into the form of a cylinder or of a cone without any change in the dimensions of the figures taken along the surface of the sheet. Or the hemispherical fundus of a bladder may be rolled into a spindle-shape without altering the dimensions on the surface. Geometry on a plane will therefore be the same as on a cylindrical surface; only in the latter case we must imagine that any number of layers of this surface, like the layers of a rolled sheet of paper, lie one upon another and that after each entire revolution round the cylinder a new layer is reached.

These observations are meant to give the reader a notion of a kind of surface the geometry of which is on the whole similar to that of the plane, but in which the axiom of parallels does not hold good, namely, a kind of curved surface which geometrically is, as it were, the counterpart of a sphere, and which has therefore been called the *pseudospherical surface* by the distinguished Italian mathematician, E. Beltrami, who has investigated its properties.† It is a saddle-shaped surface of which only limited pieces or strips can be connectedly represented in our space, but which may yet be thought of as infinitely continued in all directions, since each piece lying at the limit of the part constructed can be conceived as drawn back to the middle of it and then continued. The piece displaced must in the process change its flexure but not its dimensions, just as happens with a sheet of paper moved about a cone formed out of a plane rolled up. Such a sheet fits the conical surface in every part, but must be more bent near the vertex and cannot be so moved over the vertex as to be at the same time adapted to the existing cone and to its imaginary continuation beyond.

Like the plane and the sphere, pseudospherical surfaces have their measure of curvature constant, so that every piece of them can be exactly applied to every other piece, and therefore all figures constructed at one place on the surface can be transferred to any other place with perfect congruity of form and perfect equality of all dimensions lying in the surface itself. The measure of curvature as laid down by Gauss, which is positive for the sphere and zero for the plane, would have a constant negative value for pseudospherical surfaces, because the two principal curvatures of a saddle-shaped surface have their concavity turned opposite ways.

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* Gauss, *Werke*, Bd. IV., p. 215, first published in *Commentationes Soc. Reg. Scientt. Gottingensis recentiores*, vol. vi., 1828.

† *Saggio di Interpretazione della Geometria Non-Euclidea*, Napoli, 1868.—*Teoria fondamentale degli Spazii di Curvatura costante, Annali di Matematica*, Ser. II., Tom. II., pp. 232-55. Both have been translated into French by J. Hoüel, *Annales Scientifiques de l' Ecole Normale*, Tom. V., 1869.

A strip of a pseudospherical surface may, for example, be represented by the inner surface (turned towards the axis) of a solid anchor-ring. If the plane figure *aabb* (Fig. 1) is made to revolve on its axis of symmetry AB, the two arcs *ab* will describe a pseudospherical concave-convex surface like that of the ring. Above and below, towards *aa* and *bb*, the surface will turn outwards with ever-increasing flexure, till it becomes perpendicular to the axis and ends at the edge with one curvature infinite. Or, again, half of a pseudospherical surface may be rolled up into the shape of a champagne-glass (Fig. 2) with tapering stem infinitely prolonged. But the surface is always necessarily bounded by a sharp edge beyond which it cannot be directly continued. Only by supposing each single piece of the edge cut loose and drawn along the surface of the ring or glass, can it be brought to places of different flexure at which farther continuation of the piece is possible.

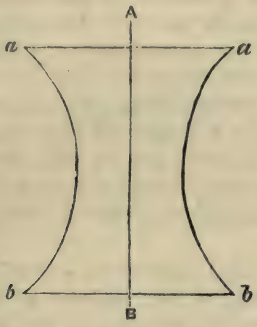

Fig. 1.

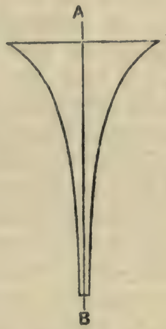

Fig. 2.

In this way too the straightest lines of the pseudospherical surface may be infinitely produced. They do not like those on a sphere return upon themselves, but, as on a plane, only one shortest line is possible between two given points. The axiom of parallels does not however hold good. If a straightest line is given on the surface and a point without it, a whole pencil of straightest lines may pass through the point, no one of which, though infinitely produced, cuts the first line; the pencil itself being limited by two straightest lines, one of which intersects one of the ends of the given line at an infinite distance, the other the other end.

As it happened, a system of geometry excluding the axiom of parallels was devised on Euclid's synthetic method, as far back as the year 1829, by N. J. Lobatschewsky, professor of mathematics at Kasan,* and it was proved that this system could be carried out as consistently as Euclid's. It agrees exactly with the geometry of the pseudospherical surfaces worked out recently by Beltrami.

Thus we see that in the geometry of two dimensions a surface is marked out as a plane or a sphere or a pseudospherical surface by the assumption that any figure may be moved about in all directions without change of dimensions. The axiom that there is only one shortest line between any two points distinguishes the plane and the pseudospherical surface from the sphere, and the axiom of parallels marks off the plane from the pseudosphere. These three axioms are in fact necessary and sufficient to define as a plane the surface to which Euclid's planimetry has reference, as distinguished from all other modes of space in two dimensions.

The difference between plane and spherical geometry has been long evident, but the meaning of the axiom of parallels could not be understood till Gauss had developed the notion of surfaces flexible without dilatation and consequently that of the possibly infinite continuation of pseudospherical surfaces. Inhabiting a space of three dimensions and endowed with organs of sense for their perception, we can represent to ourselves the various cases in which beings on a surface might have to develop their perception of space; for we have only to limit our own perceptions to a narrower field. It is easy to think away perceptions that we have; but it is very difficult to imagine perceptions to which there is nothing analogous in our experience. When, therefore, we pass to space of three dimensions we are stopped in our power of representation by the structure of our organs and the experiences got through them which correspond only to the space in which we live.

There is however another way of treating geometry scientifically. All known space-relations are measurable, that is they may be brought to determination of magnitudes (lines, angles, surfaces, volumes). Problems in geometry can therefore be solved by finding methods of calculation for arriving at unknown magnitudes from known ones. This is done in analytical geometry, where all forms of space are treated only as quantities and determined by means of other quantities. Even the axioms themselves make reference to magnitudes. The straight line is defined as the *shortest* between two points, which is a determination of quantity. The axiom of parallels declares that if two straight lines in a plane do not intersect (are parallel), the alternate angles, or the corresponding angles, made by a third line intersecting them, are equal; or it may be laid down instead that the sum of the angles of any triangle is equal to two right angles. These are determinations of quantity.

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* *Principien der Geometrie,* Kasan, 1829-30.

Now we may start with this view of space, according to which the position of a point may be determined by measurements in relation to any given figure (system of co-ordinates), taken as fixed, and then inquire what are the special characteristics of our space as manifested in the measurements that have to be made, and how it differs from other extended quantities of like variety. This path was first entered by one too early lost to science, B. Riemann of Göttingen.* It has the peculiar advantage that all its operations consist in pure calculation of quantities, which quite obviates the danger of habitual perceptions being taken for necessities of thought.

The number of measurements necessary to give the position of a point is equal to the number of dimensions of the space in question. In a line the distance from one fixed point is sufficient, that is to say, one quantity; in a surface the distances from two fixed points must be given; in space, the distances from three; or we require as on the earth longitude, latitude and height above the sea, or, as is usual in analytical geometry, the distances from three co-ordinate planes. Riemann calls a system of differences in which one thing can be determined by n measurements an "$n$fold extended aggregate" or an "aggregate of n dimensions." Thus the space in which we live is a three-fold, a surface is a twofold and a line is a simple extended aggregate of points. Time also is an aggregate of one dimension. The system of colours is an aggregate of three dimensions, inasmuch as each colour, according to the investigations of Th. Young and Clerk Maxwell, may be represented as a mixture of three primary colours, taken in definite quantities. The particular mixtures can be actually made with the colour-top.

In the same way we may consider the system of simple tones as an aggregate of two dimensions, if we distinguish only pitch and intensity and leave out of account differences of timbre. This generalisation of the idea is well-suited to bring out the distinction between space of three dimensions and other aggregates. We can, as we know from daily experience, compare the vertical distance of two points with the horizontal distance of two others, because we can apply a measure first to the one pair and then to the other. But we cannot compare the difference between two tones of equal pitch and different intensity with that between two tones of equal intensity and different pitch. Riemann showed by considerations of this kind that the essential foundation of any system of geometry is the expression that it gives for the distance between two points lying in any direction from one another, beginning with the interval as infinitesimal. He took from analytical geometry the most general form for this expression, that, namely, which leaves altogether open the kind of measurements by which the position of any point is given.* Then he showed that the kind of free mobility without change of form which belongs to bodies in our space can only exist when certain quantities yielded by the calculation†—quantities that coincide with Gauss's measure of surface-curvature when they are expressed for surfaces—have everywhere an equal value. For this reason Riemann calls these quantities, when they have the same value in all directions for a particular spot, the measure of curvature of the space at this spot. To prevent misunderstanding I will once more observe that this so-called measure of space-curvature is a quantity obtained by purely analytical calculation and that its introduction involves no suggestion of relations that would have a meaning only for sense-perception. The name is merely taken, as a short expression for a complex relation, from the one case in which the quantity designated admits of sensible representation.

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* Ueber die Hypothesen welche der Geometrie zu Grunde liegen, Habilitationsschrift vom 10 Juni 1854. (*Abhandl. der königl. Gesellsch. zu Göttingen*, Bd. XIII.).

Now whenever the value of this measure of curvature in any space is everywhere zero, that space everywhere conforms to the axioms of Euclid; and it may be called a *flat (homaloid)* space in contradistinction to other spaces, analytically constructible, that may be called *curved* because their measure of curvature has a value other than zero. Analytical geometry may be as completely and consistently worked out for such spaces as ordinary geometry for our actually existing homaloid space.

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* For the square of the distance of two infinitely near points the expression is a homogeneous quadric function of the differentials of their co-ordinates.

† They are algebraical expressions compounded from the co-efficients of the various terms in the expression for the square of the distance of two contiguous points and from their differential quotients.

If the measure of curvature is positive we have *spherical* space, in which straightest lines return upon themselves and there are no parallels. Such a space would, like the surface of a sphere, be unlimited but not infinitely great. A constant negative measure of curvature on the other hand gives *pseudospherical* space, in which straightest lines run out to infinity and a pencil of straightest lines may be drawn in any flattest surface through any point which do not intersect another given straightest line in that surface.

Beltrami* has rendered these last relations imaginable by showing that the points, lines and surfaces of a pseudospherical space of three dimensions can be so portrayed in the interior of a sphere in Euclid's homaloid space, that every straightest line or flattest surface of the pseudospherical space is represented by a straight line or a plane, respectively, in the sphere. The surface itself of the sphere corresponds to the infinitely distant points of the pseudospherical space; and the different parts of this space, as represented in the sphere, become smaller the nearer they lie to the spherical surface, diminishing more rapidly in the direction of the radii than in that perpendicular to them. Straight lines in the sphere which only intersect beyond its surface correspond to straightest lines of the pseudospherical space which never intersect.

Thus it appeared that space, considered as a region of measurable quantities, does not at all correspond with the most general conception of an aggregate of three dimensions, but involves also special conditions, depending on the perfectly free mobility of solid bodies without change of form to all parts of it and with all possible changes of direction, and, farther, on the special value of the measure of curvature which for our actual space equals, or at least is not distinguishable from, zero. This latter definition is given in the axioms of straight lines and parallels.

Whilst Riemann entered upon this new field from the side of the most general and fundamental questions of analytical geometry, I myself arrived at similar conclusions,† partly from seeking to represent in space the system of colours, involving the comparison of one threefold extended aggregate with another, and partly from inquiries on the origin of our ocular measure for distances in the field of vision. Riemann starts by assuming the above-mentioned algebraical expression which represents in the most general form the distance between two infinitely near points, and deduces therefrom the conditions of mobility of rigid figures. I, on the other hand, starting from the observed fact that the movement of rigid figures is possible in our space, with the degree of freedom that we know, deduce the necessity of the algebraic expression taken by Riemann as an axiom. The assumptions that I had to make as the basis of the calculation were the following.

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* *Teoria fondamentale, &c., ut sup.*

† Ueber die Thatsachen die der Geometrie zum Grunde liegen (*Nachrichten von der konigl. Ges. d. Wiss. zu Göttingen*, Juni 3, 1868).

First, to make algebraical treatment possible, it must be assumed that the position of any point A can be determined, in relation to certain given figures taken as fixed bases, by measurement of some kind of magnitudes, as lines, angles between lines, angles between surfaces and so forth. The measurements necessary for determining the position of A are known as its co-ordinates. In general the number of co-ordinates necessary to the complete determination of the position of a point marks the number of the dimensions of the space in question. It is further assumed that with the movement of the point A the magnitudes used as co-ordinates vary continuously.

Secondly, the definition of a solid body, or rigid system of points, must be made in such a way as to admit of magnitudes being compared by congruence. As we must not at this stage assume any special methods for the measurement of magnitudes, our definition can, in the first instance, run only as follows: Between the co-ordinates of any two points belonging to a solid body, there must be an equation which, however the body is moved, expresses a constant spatial relation (proving at last to be the distance) between the two points, and which is the same for congruent pairs of points, that is to say, such pairs as can be made successively to coincide in space with the same fixed pair of points.

However indeterminate in appearance, this definition involves most important consequences, because with increase in the number of points the number of equations increases much more quickly than the number of co-ordinates which they determine. Five points, A, B, C, D, E give ten different pairs of points (AB, AC, AD, AE, BC, BD, BE, CD, CE, DE) and therefore ten equations, involving in space of three dimensions fifteen variable co-ordinates. But of these fifteen six must remain arbitrary if the system of five points is to admit of free movement and rotation, and thus the ten equations can determine only nine co-ordinates as functions of the six variables. With six points we obtain fifteen equations for twelve quantities, with seven points twenty-one equations for fifteen, and so on. Now from n independent equations we can determine n contained quantities, and if we have more than n equations, the superfluous ones must be deducible from the first n. Hence it follows that the equations which subsist between the co-ordinates of each pair of points of a solid body must have a special character, seeing that, when in space of three dimensions they are satisfied for nine pairs of points as formed out of any five points, the equation for the tenth pair follows by logical consequence. Thus our assumption for the definition of solidity becomes quite sufficient to determine the kind of equations holding between the co-ordinates of two points rigidly connected.

Thirdly, the calculation must further be based on the fact of a peculiar circumstance in the movement of solid bodies, a fact so familiar to us that but for this inquiry it might never have been thought of as something that need not be. When in our space of three dimensions two points of a solid body are kept fixed, its movements are limited to rotations round the straight line connecting them. If we turn it completely round once, it again occupies exactly the position it had at first. This fact that rotation in one direction always brings a solid body back into its original position needs special mention. A system of geometry is possible without it. This is most easily seen in the geometry of a plane. Suppose that with every rotation of a plane figure its linear dimensions increased in proportion to the angle of rotation, the figure after one whole rotation through 360 degrees would no longer coincide with itself as it was originally. But any second figure that was congruent with the first in its original position might be made to coincide with it in its second position by being also turned through 360 degrees. A consistent system of geometry would be possible upon this supposition, which does not come under Riemann's formula.

On the other hand I have shown that the three assumptions taken together form a sufficient basis for the starting-point of Riemann's investigation, and thence for all his further results relating to the distinction of different spaces according to their measure of curvature.

It still remained to be seen whether the laws of motion as dependent on moving forces could also be consistently transferred to spherical or pseudospherical space. This investigation has been carried out by Professor Lipschitz of Bonn.* It is found that the comprehensive expression for all the laws of dynamics, Hamilton's principle, may be directly transferred to spaces of which the measure of curvature is other than zero. Accordingly, in this respect also the disparate systems of geometry lead to no contradiction.

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* Untersuchungen über die ganzen homogenen Functionen von n Differentialen (Borchardt's *Journal für Mathematik*, Bde. lxx. 3, 71; lxxiii. 3, 1); Untersuchung eines Problems der Variationsrechnung (Ibid. Bd. lxxiv.)

We have now to seek an explanation of the special characteristics of our own flat space, since it appears that they are not implied in the general notion of an extended quantity of three dimensions and of the free mobility of bounded figures therein. Necessities of thought, involved in such a conception, they are not. Let us then examine the opposite assumption as to their origin being empirical, and see if they can be inferred from facts of experience and so established, or if, when tested by experience, they are perhaps to be rejected. If they are of empirical origin we must be able to represent to ourselves connected series of facts indicating a different value for the measure of curvature from that of Euclid's flat space. But if we can imagine such spaces of other sorts, it cannot be maintained that the axioms of geometry are necessary consequences of an *à priori* transcendental form of intuition, as Kant thought.

The distinction between spherical, pseudospherical and Euclid's geometry depends, as was above observed, on the value of a certain constant called by Riemann the measure of curvature of the space in question. The value must be zero for Euclid's axioms to hold good. If it were not zero, the sum of the angles of a large triangle would differ from that of the angles of a small one, being larger in spherical, smaller in pseudospherical space. Again, the geometrical similarity of large and small solids or figures is possible only in Euclid's space. All systems of practical mensuration that have been used for the angles of large rectilinear triangles, and especially all systems of astronomical measurement which make the parallax of the immeasurably distant fixed stars equal to zero (in pseudospherical space the parallax even of infinitely distant points would be positive), confirm empirically the axiom of parallels and show the measure of curvature of our space thus far to be indistinguishable from zero. It remains, however, a question, as Riemann observed, whether the result might not be different if we could use other than our limited base-lines, the greatest of which is the major axis of the earth's orbit.

Meanwhile, we must not forget that all geometrical measurements rest ultimately upon the principle of congruence. We measure the distance between points by applying to them the compass, rule or chain. We measure angles by bringing the divided circle or theodolite to the vertex of the angle. We also determine straight lines by the path of rays of light which in our experience is rectilinear; but that light travels in shortest lines as long as it continues in a medium of constant refraction would be equally true in space of a different measure of curvature. Thus all our geometrical measurements depend on our instruments being really, as we consider them, invariable in form, or at least on their undergoing no other than the small changes we know of as arising from variation of temperature or from gravity acting differently at different places.

In measuring we only employ the best and surest means we know of to determine what we otherwise are in the habit of making out by sight and touch or by pacing. Here our own body with its organs is the instrument we carry about in space. Now it is the hand, now the leg that serves for a compass, or the eye turning in all directions is our theodolite for measuring arcs and angles in the visual field.

Every comparative estimate of magnitudes or measurement of their spatial relations proceeds therefore upon a supposition as to the behaviour of certain physical things, either the human body or other instruments employed. The supposition may be in the highest degree probable and in closest harmony with all other physical relations known to us, but yet it passes beyond the scope of pure space-intuition.

It is in fact possible to imagine conditions for bodies apparently solid such that the measurements in Euclid's space become what they would be in spherical or pseudospherical space. Let me first remind the reader that if all the linear dimensions of other bodies and our own at the same time were diminished or increased in like proportion, as for instance to half or double their size, we should with our means of space-perception be utterly unaware of the change. This would also be the case if the distension or contraction were different in different directions, provided that our own body changed in the same manner and further that a body in rotating assumed at every moment, without suffering or exerting mechanical resistance, the amount of dilatation in its different dimensions corresponding to its position at the time. Think of the image of the world in a convex mirror. The common silvered globes set up in gardens give the essential features, only distorted by some optical irregularities. A well-made convex mirror of moderate aperture represents the objects in front of it as apparently solid and in fixed positions behind its surface. But the images of the distant horizon and of the sun in the sky lie behind the mirror at a limited distance, equal to its focal length. Between these and the surface of the mirror are found the images of all the other objects before it, but the images are diminished and flattened in proportion to the distance of their objects from the mirror. The flattening, or decrease in the third dimension, is relatively greater than the decrease of the surface-dimensions. Yet every straight line or every plane in the outer world is represented by a straight line or a plane in the image. The image of a man measuring with a rule a straight line from the mirror would contract more and more the farther he went, but with his shrunken rule the man in the image would count out exactly the same number of centimetres as the real man. And, in general, all geometrical measurements of lines or angles made with regularly varying images of real instruments would yield exactly the same results as in the outer world, all congruent bodies would coincide on being applied to one another in the mirror as in the outer world, all lines of sight in the outer world would be represented by straight lines of sight in the mirror. In short I do not see how men in the mirror are to discover that their bodies are not rigid solids and their experiences good examples of the correctness of Euclid's axioms. But if they could look out upon our world as we can look into theirs, without overstepping the boundary, they must declare it to be a picture in a spherical mirror, and would speak of us just as we speak of them; and if two inhabitants of the different worlds could communicate with one another, neither, so far as I can see, would be able to convince the other that he had the true, the other the distorted relations. Indeed I cannot see that such a question would have any meaning at all so long as mechanical considerations are not mixed up with it.

Now Beltrami's representation of pseudospherical space in a sphere of Euclid's space is quite similar except that the background is not a plane as in the convex mirror, but the surface of a sphere, and that the proportion in which the images as they approach the spherical surface contract, has a different mathematical expression. If we imagine then, conversely, that in the sphere, for the interior of which Euclid's axioms hold good, moving bodies contract as they depart from the centre like the images in a convex mirror, and in such a way that their representatives in pseudospherical space retain their dimensions unchanged,—observers whose bodies were regularly subjected to the same change would obtain the same results from the geometrical measurements they could make as if they lived in pseudospherical space.

We can even go a step further, and infer how the objects in a pseudospherical world, were it possible to enter one, would appear to an observer whose eye-measure and experiences of space had been gained like ours in Euclid's space. Such an observer would continue to look upon rays of light or the lines of vision as straight lines, such as are met with in flat space and as they really are in the spherical representation of pseudospherical space. The visual image of the objects in pseudospherical space would thus make the same impression upon him as if he were at the centre of Beltrami's sphere. He would think he saw the most remote objects round about him at a finite distance,* let us suppose a hundred feet off. But as he approached these distant objects, they would dilate before him, though more in the third dimension than superficially, while behind him they would contract. He would know that his eye judged wrongly. If he saw two straight lines which in his estimate ran parallel for the hundred feet to his world's end, he would find on following them that the farther he advanced the more they diverged, because of the dilatation of all the objects to which he approached. On the other hand behind him their distance would seem to diminish, so that as he advanced they would appear always to diverge more and more. But two straight lines which from his first position seemed to converge to one and the same point of the background a hundred feet distant, would continue to do this however far he went, and he would never reach their point of intersection.

Now we can obtain exactly similar images of our real world if we look through a large convex lens of corresponding negative focal length, or even through a pair of convex spectacles if ground somewhat prismatically to resemble pieces of one continuous larger lens. With these, like the convex mirror, we see remote objects as if near to us, the most remote appearing no farther distant than the focus of the lens. In going about with this lens before the eyes, we find that the objects we approach dilate exactly in the manner I have described for pseudospherical space. Now any one using a lens, were it even so strong as to have a focal length of only sixty inches, to say nothing of a hundred feet, would perhaps observe for the first moment that he saw objects brought nearer. But after going about a little the illusion would vanish, and in spite of the false images he would judge of the distances rightly. We have every reason to suppose that what happens in a few hours to any one beginning to wear spectacles would soon enough be experienced in pseudospherical space. In short, pseudospherical space would not seem to us very strange, comparatively speaking; we should only at first be subject to illusions in measuring by eye the size and distance of the more remote objects.

There would be illusions of an opposite description, if, with eyes practised to measure in Euclid's space, we entered a spherical space of three dimensions. We should suppose the more distant objects to be more remote and larger than they are, and should find on approaching them that we reached them more quickly than we expected from their appearance. But we should also see before us objects that we can fixate only with diverging lines of sight, namely, all those at a greater distance from us than the quadrant of a great circle. Such an aspect of things would hardly strike us as very extraordinary, for we can have it even as things are if we place before the eye a slightly prismatic glass with the thicker side towards the nose: the eyes must then become divergent to take in distant objects. This excites a certain feeling of unwonted strain in the eyes but does not perceptibly change the appearance of the objects thus seen. The strangest sight, however, in the spherical world would be the back of our own head, in which all visual lines not stopped by other objects would meet again, and which must fill the extreme background of the whole perspective picture.

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* The reciprocal of the square of this distance, expressed in negative quantity, would be the measure of curvature of the pseudospherical space.

At the same time it must be noted that as a small elastic flat disc, say of india-rubber, can only be fitted to a slightly curved spherical surface with relative contraction of its border and distension of its centre, so our bodies, developed in Euclid's flat space, could not pass into curved space without undergoing similar distensions and contractions of their parts, their coherence being of course maintained only in as far as their elasticity permitted their bending without breaking. The kind of distension must be the same as in passing from a small body imagined at the centre of Beltrami's sphere to its pseudospherical or spherical representation. For such passage to appear possible, it will always have to be assumed that the body is sufficiently elastic and small in comparison with the real or imaginary radius of curvature of the curved space into which it is to pass.

These remarks will suffice to show the way in which we can infer from the known laws of our sensible perceptions the series of sensible impressions which a spherical or pseudospherical world would give us, if it existed. In doing so we nowhere meet with inconsistency or impossibility any more than in the calculation of its metrical proportions. We can represent to ourselves the look of a pseudospherical world in all directions just as we can develop the conception of it. Therefore it cannot be allowed that the axioms of our geometry depend on the native form of our perceptive faculty, or are in any way connected with it.

It is different with the three dimensions of space. As all our means of sense-perception extend only to space of three dimensions, and a fourth is not merely a modification of what we have but something perfectly new, we find ourselves by reason of our bodily organisation quite unable to represent a fourth dimension.

In conclusion I would again urge that the axioms of geometry are not propositions pertaining only to the pure doctrine of space. As I said before, they are concerned with quantity. We can speak of quantities only when we know of some way by which we can compare, divide and measure them. All space-measurements and therefore in general all ideas of quantities applied to space assume the possibility of figures moving without change of form or size. It is true we are accustomed in geometry to call such figures purely geometrical solids, surfaces, angles and lines, because we abstract from all the other distinctions physical and chemical of natural bodies; but yet one physical quality, rigidity, is retained. Now we have no other mark of rigidity of bodies or figures but congruence, whenever they are applied to one another at any time or place, and after any revolution. We cannot however decide by pure geometry and without mechanical considerations whether the coinciding bodies may not both have varied in the same sense.

If it were useful for any purpose, we might with perfect consistency look upon the space in which we live as the apparent space behind a convex mirror with its shortened and contracted background; or we might consider a bounded sphere of our space, beyond the limits of which we perceive nothing further, as infinite pseudospherical space. Only then we should have to ascribe to the bodies which appear as solid and to our own body at the same time corresponding distensions and contractions, and we must change our system of mechanical principles entirely; for even the proposition that every point in motion, if acted upon by no force, continues to move with unchanged velocity in a straight line, is not adapted to the image of the world in the convex-mirror. The path would indeed be straight, but the velocity would depend upon the place.

Thus the axioms of geometry are not concerned with space-relations only but also at the same time with the mechanical deportment of solidest bodies in motion. The notion of rigid geometrical figure might indeed be conceived as transcendental in Kant's sense, namely, as formed independently of actual experience, which need not exactly correspond therewith, any more than natural bodies do ever in fact correspond exactly to the abstract notion we have obtained of them by induction.

Taking the notion of rigidity thus as a mere ideal, a strict Kantian might certainly look upon the geometrical axioms as propositions given *à priori* by transcendental intuition which no experience could either confirm or refute, because it must first be decided by them whether any natural bodies can be considered as rigid. But then we should have to maintain that the axioms of geometry are not synthetic propositions, as Kant held them: they would merely define what qualities and deportment a body must have to be recognised as rigid.

But if to the geometrical axioms we add propositions relating to the mechanical properties of natural bodies, were it only the axiom of inertia or the single proposition that the mechanical and physical properties of bodies and their mutual reactions are, other circumstances remaining the same, independent of place, such a system of propositions has a real import which can be confirmed or refuted by experience, but just for the same reason can also be got by experience. The mechanical axiom just cited is in fact of the utmost importance for the whole system of our mechanical and physical conceptions. That rigid solids, as we call them, which are really nothing else than elastic solids of great resistance, retain the same form in every part of space if no external force affects them, is a single case falling under the general principle.

For the rest, I do not, of course, suppose that mankind first arrived at space-intuitions in agreement with the axioms of Euclid by any carefully executed systems of exact measurement. It was rather a succession of every day experiences, especially the perception of the geometrical similarity of great and small bodies, only possible in flat space, that led to the rejection, as impossible, of every geometrical representation at variance with this fact. For this no knowledge of the necessary logical connection between the observed fact of geometrical similarity and the axioms was needed, but only an intuitive apprehension of the typical relations between lines, planes, angles, &c., obtained by numerous and attentive observations —an intuition of the kind the artist possesses of the objects he is to represent, and by means of which he decides surely and accurately whether a new combination which he tries will correspond or not to their nature. It is true that we have no word but *intuition* to mark this; but it is knowledge empirically gained by the aggregation and reinforcement of similar recurrent impressions in memory, and not a transcendental form given before experience. That other such empirical intuitions of fixed typical relations, when not clearly comprehended, have frequently enough been taken by metaphysicians for *à priori* principles, is a point on which I need not insist.

To sum up, the final outcome of the whole inquiry may be thus expressed:—

(1.) The axioms of geometry, taken by themselves out of all connection with mechanical propositions, represent no relations of real things. When thus isolated, if we regard them with Kant as forms of intuition transcendentally given, they constitute a form into which any empirical content whatever will fit and which therefore does not in any way limit or determine beforehand the nature of the content. This is true, however, not only of Euclid's axioms, but also of the axioms of spherical and pseudospherical geometry.

(2.) As soon as certain principles of mechanics are conjoined with the axioms of geometry we obtain a system of propositions which has real import, and which can be verified or overturned by empirical observations, as from experience it can be inferred. If such a system were to be taken as a transcendental form of intuition and thought, there must be assumed a pre-established harmony between form and reality.

H. HELMHOLTZ.

II.—ASSOCIATIONISM AND THE ORIGIN OF MORAL IDEAS.

CAN the fact that man distinguishes right from wrong be explained by the association of ideas? This is the question which I mean to discuss, and as I feel compelled to answer it in the negative, it is the more requisite that I should acknowledge at the outset association to be a great and fruitful principle, of wide range and powerful influence in the mental economy. It is not confined to any particular province of human nature, but operates alike among our thoughts, feelings and volitions, bringing them into the most varied combinations. Its laws are essential conditions of memory and reminiscence, of all the powers of intellectual acquisitiveness and inventiveness, of imagination and reasoning; they are implied in the perfecting and perverting of every perceptive faculty and emotional capacity; and largely determine the growth of character both in individuals and communities. In a word, it is mainly through association that mental energy is accumulated and mental change effected. It is the sovereign means of eliciting and educating, of drawing out and developing, the original endowments of the mind, and it is continually altering for the better or worse all temperaments, dispositions, habits,

&c., already acquired. Then, manifestly the power of association is as great within the ethical as within any other sphere of consciousness; and manifestly a clear apprehension of the laws of association is of prime importance to every psychologist who desires to explain the upbuilding of the moral nature in individuals or the formation of the moral character of communities. Thousands of moral phenomena, both good and bad, are explicable by these laws, and by these laws alone. Probably association determines and colours to some extent all our moral judgments. The larger portion of the teaching of the associationists in regard to the moral nature and to moral judgment is, in fact, not distinctive, and may fairly be accepted and utilised by psychologists of all schools.

It is only with a very small part, a single position, of what is distinctive in the teaching of the associationist philosophers that we are at present concerned. The question is,—Can association account wholly for moral discrimination? Are all moral ideas resolvable into non-moral elements? Is there nothing original in the perceptions of conscience? But this question obviously cannot be answered without a general consideration of the theory of association in relation to it. Only after such preliminary investigation can the particular associationist answers which have been proposed be satisfactorily examined.

What is distinctive of the teaching of associationists in regard to moral as well as to ordinary cognition appears to their opponents to arise simply from the exaggeration of a principle the general truth and importance of which are admitted to be unquestionable. Associationists seem to other psychologists to have overlooked the limits within which their principle is applicable, and consequently, to have put it to perform what is beyond its power. Association is a fact which itself needs explanation; a process which implies a subject, powers, conditions and constituent elements. Association has no existence at all apart from things associated, and the mere association even of things associated explains nothing. No physical compound is accounted for simply by the association of its components. Water cannot be resolved into the association of oxygen and hydrogen; the association of these two chemical elements is only the condition of the union of their properties and of the operation of their latent powers. Thus even if the associations of mental states were essentially similar to the syntheses of material substances, all psychological explanations which went no deeper than the mere fact of association would be superficial and unsatisfactory; even in that case the association would in every single instance require to be explained, But association in mind cannot account for even so much as association in material nature. It involves other limitations which greatly restrict its sway. Mental states have not, like chemical substances, or even, relatively to us, like physical qualities, a distinct and independent existence and action. They exist and operate only as modes of a conscious and active mind. It is not they that combine, but the mind which combines them. It is not sensations, not impressions of any kind, which originate complex ideas; they only furnish occasion for the mind to exercise its own powers, and in the exercise of its own powers it must act according to certain principles deeper than the so-called laws of association. The association of ideas presupposes a mind possessed of ideas and possessed of the power of associating them. We could not have learned that we had the power of association but by the process of association, yet having associated ideas we know that the power must have pre-existed in order to make the process possible. The associationist always, consciously or unconsciously, assumes that ideas, like chemical substances, have a distinct existence and properties of their own, and, in consequence, attributes to their self-combination the very power on which their combination is dependent, as well as the conditions under which that power operates. To anti-associationists this assumption seems erroneous and unscientific. Mental states, they think, do not combine of themselves; it is the mind which combines them, which associates things that have been proximate in time, or co-adjacent in space, or that are like or unlike each other, and it could not do so unless it had ideas or intuitions of time, space and likeness to start with. This view they find strongly confirmed by examination of the attempts which have been made to explain ideas like those of space and time as the results of processes of association, these attempts invariably assuming at some point or other the ideas which they profess to account for. But if all association presupposes original ideas as its conditions, there can be nothing strange or exceptional in certain special associations involving an idea of rightness which also cannot itself be explained by a process of association. There can, indeed, be no doubt that the idea of rightness may give rise to associations and become a principle of association, inasmuch as we constantly transfer thoughts and feelings of right from one act to another or from persons to acts, but then what we transfer in these cases is a something already existing in thought, a condition of a particular kind of thought, a something which explains the transference instead of the transference explaining it. Does association ever explain more as regards our moral judgments than such transference?

Proof that it does seems to the majority of psychologists still wanting. They find even the latest and most ingenious attempts to show that association not only transfers moral ideas to other than moral actions but originates moral ideas to be unsuccessful. Sometimes the idea accounted for is illegitimately divested of its moral qualities, as when J. S. Mill identifies justice with the desire to do hurt to a person who has done harm to you or to somebody with whom you sympathise, which is neither justice nor any other moral principle; but more frequently moral elements are unconsciously introduced into the explanation when sensation and association are supposed to be doing everything. The analyses of conscience by Hartley, Mackintosh and Bain, for example, appear to those who do not ascribe to association anything like creative power to be largely vitiated in this latter way.

It is further important to remark that all plausible argumentation designed to show that moral ideas are not merely transferred by association from one act to another or from persons to acts, but are originated by the transmutation through association of sensuous impressions into moral convictions, proceeds on what is called the law of inseparable association, and that the views of associationists regarding this so-called law are neither clear nor correct. From the very rise of associationism properly so-called it has been seen that it could only hope to achieve what it ventured to attempt if association were capable of inseparably uniting the mental states which it may happen to bring into contact and relationship. The two earliest English associationists—the anonymous author of the *Inquiry into the Origin of Human Appetites and Affections* (Gay) and Hartley—proceed throughout on the supposition that association possesses this power of indissolubly connecting and combining ideas. Contemporary associationists accept it without hesitation. Probably few of them felt the *naïveté* of J. S. Mill's affirmation that psychologists of the opposite school had "not so much rejected as ignored" the law in question, and "had never, even for an instant, brought the powers of their minds into real and effective contact with it." If this alleged law be ill-founded associationism can obviously fulfil none of its more ambitious promises. And to most psychologists the evidence for its truth seems extremely small. Literally taken, inseparable association means nothing more than that the ideas associated are inseparable. There are ideas thus associated. Cause and effect, whole and part, colour and extension, for example, are always thought of together and cannot be thought of apart. Their separation is inconceivable, and what we cannot conceive to be separated we hold to be inseparable. The associationist, however, does not mean by inseparable association the mere fact of indissoluble conjunction. He means by it further that the conjunction is one which has *grown to be* indissoluble,—one which *association has made* indissoluble. But can he show that any strictly inseparable association has grown at all. Can he show that any of the ideas which cannot be conceived as existing apart either ever did exist apart or were ever able to be thought of by us as existing apart? Can he give us any reason for thinking that our belief in necessary truth was at one time imperfect? I do not find that he can. Where is the evidence that the most ignorant savage can any more conceive of a change without a cause than the most highly trained thinker? Or that a child can conceive of colour without extension one whit better than a grown man? Who has the slightest remembrance of a time when he had doubts about twice two being four? If we have acquired by association the belief that two straight lines cannot enclose a space we must have originally been able to believe that they could enclose a space. But what proof is there that we could ever conceive this? None. When J. S. Mill wrote, "There are no counter-associations in this case, and consequently the primary association, being founded on an experience beginning from birth, and never for many minutes intermitted in our waking hours, easily becomes inseparable," he had manifestly forgotten to ask himself why there were no "counter-associations," as he certainly forgot to disprove that the explanation of there being none was that reason could not entertain a counter-association in such a case. The so-called primary association is here inseparable, and consequently there are no counter-associations—not, there are no counter-associations, and consequently the primary association becomes inseparable. The mind cannot learn by association that certain ideas are inseparably united, or, in other words, that certain truths are necessary, unless these ideas once seemed to it separate and these truths unnecessary; that is, unless it began by being able to conceive what is now absolutely inconceivable to it. But of any such time and any such power associationists have still the evidence to produce. Hence their hypothesis of inseparable association has as yet received no truly scientific verification. If we could not conceive the inconceivable at the beginning any more than now, if what seems impossible at present never seemed possible, inseparable associations cannot have been formed by association at all. If the belief of necessary truth be of its own nature exclusive of counter-associations there is no room either for the commencement or continuance of a process of association by which reason may attain to the belief of necessary truth. To this it has to be added that wherever there is any evidence of ideas having been connected by a process of association there the ideas are always separable. No matter how frequent and uninterrupted may have been their recurrence, and however close and permanent may have become in consequence their conjunction, still they never are inseparable. We have always observed day and night succeed each other, but we have no difficulty in conceiving them apart, in conceiving either night or day to be eternal; we have never seen the sun or moon elsewhere than in the sky, but we can easily imagine them out of it. Let the associationists produce a single case of conjunction undoubtedly produced by association which has become inseparable, and it will tell more in their favour than volumes of argument. They have not yet done so: that is to say, they have as yet done nothing to prove their alleged law of inseparable association, without which they must themselves confess it hopeless to attempt to resolve conscience into sensational elements.

While proof that two or more ideas can become by repeated association inseparably combined is manifestly binding on whoever would establish that there is nothing original in moral ideas, it cannot supply of itself an all-sufficient means of reaching the required demonstration. It would place in the hands of associationists an instrument of great power, but yet not an instrument adequate to accomplish what they propose. They require to make a new and still greater assumption, and their courage is equal to the occasion. They need to suppose that the sum of a number of inseparably associated ideas becomes a new existence in which the associated ideas are not only inseparable but indistinguishable, and they assert that such is the case. This is obviously much more than inseparable association. If true at all, it should be regarded as a separate law and have a name of its own. It has as yet only been treated of as an application of the law of inseparable association. It is at this point that the perverting power of physical analogies becomes specially manifest. When a wheel,—to use James Mill's illustration,—on the seven parts of which the seven prismatic colours are respectively painted, is made to revolve with sufficient rapidity, it appears not of seven colours, but of one uniform colour, white, the sensation of which is apparently single and simple although formed by the combination and coalescence of seven sensations distinct from it and from one another. When a chemist pours one gas into another or one liquid into another, the third thing which he produces is often in all its physical properties utterly unlike either of its components. Associationists hold that it is not otherwise with the states of mind which are connected by the ties of suggestion; that these states in like manner, if sufficiently associated, come not only to be inseparable, or at least always unseparated, but to coalesce, to run into one, which although complex is to consciousness simple and single, and possessed of quite other characteristics than those which by their union formed it. And it is obvious that this is a quite essential part of the theory so far as it is applied to explain the origin of moral ideas. It is only if sensations of pleasure and pain can undergo such a transformation, only if they can thus be made to become something quite unlike themselves, that the attempt to analyse either moral cognition or moral action into them becomes plausible. Is it, then, made out that mental states thus coalesce into compounds with quite other properties than their own? By no means. It can only be made out by the production of instances, but not a single relevant instance has been produced. James Mill gets the honour, indeed, of having by an adequate induction established the fact, but the only instances he gives are such complex ideas as those of tree, stone, man, horse, in which whatever there may be there is certainly no coalescence of simple states into a complex state entirely distinct from its components, but only a close conjunction of the constituent single states. Colour, extension, roughness, hardness, smoothness, taste, smell, conjoin to form the one idea tree, but they do not form it by coalescence into an idea which has properties not to be found in any of its constituent parts, otherwise our idea of a tree would be that of something which had not colour, extension, roughness, hardness, taste, smell, but other properties,—which would be a very curious and erroneous idea of a tree. This remark may be extended to every instance which has been adduced. They are no instances of coalescence but merely of conjunction. If, therefore, the idea of virtue be one formed by coalescence, it is quite singular in its origin. It is either a solitary exception to rule or it has a whole rule to itself.

There is another assumption, one closely akin to that just indicated, to be discovered in all applications of association to account for moral ideas out of pleasant and painful sensations. It is that difference in degree may become in psychology a real difference in kind. The necessity of this assumption in the case under consideration is apparent. The right presents itself to our consciousness as markedly and intrinsically different from the pleasant or the expedient, the wrong as quite unlike the painful or inexpedient. The cognition of right and wrong and the feeling of good or ill desert cannot be confounded by any mind which possesses them with any other cognition or feeling. This fact associationists cannot deny, and consequently they must account for it consistently with their hypothesis. Accordingly they argue that lower experiences like those of pleasure and pain, expediency and inexpediency, may owing to certain causes in certain cases undergo a process of entire transmutation through association, and acquire the characteristics which distinguish the sense of justice from every other principle of human nature. They assume, in other words, that difference in degree can become difference in kind. It is curious that this assumption, although acted on by the whole school from the commencement, should have been only tacitly accepted and made use of until J. S. Mill gave it a distinct expression. But while it has at length been generalised and formulated it has not yet been proved, nor even attempted to be proved, by any associationist. That important step, which, of course, should have been the very first taken, has somehow been left to the last. It will doubtless be replied that evolutionism has supplied a proof, and freed associationism from the necessity of producing one for itself. But this answer is more plausible than truly satisfactory. For, in the first place, evolutionism in one respect raises a manifest presumption against associationism. The evolutionists are unanimous in declaring vast periods of time necessary for degree to pass into kind, grade into species, whereas the associationists suppose the transmutation to be accomplished in the few years of infancy. According to the former moral perceptions are the results of a process which comprehends countless generations and races of beings and which has continued through an indefinitely vast number of ages; according to the latter they are produced in a very limited time within each individual mind. If evolutionism be true the presumption is that associationism cannot find in the facts to which its attention is confined a proof that experiences of utility can be developed into moral cognitions and emotions. Associationism must prove its own assertions, and by facts and arguments consistent with its own principles. In the second place, the theory of evolution does not of itself necessarily imply that moral intuitions have been developed out of experiences of utility organised and consolidated through a long series of animal and human generations. It is very natural, indeed, to infer that it does, and the two most distinguished of evolutionists, Mr. Spencer and Mr. Darwin, have drawn the inference and constructed ingenious theories which presuppose it. "When we trace back in thought," says Mr. Sidgwick in the first number of this journal, "the series of organisms of which man is the final result, we must—at some point or other, it matters not where—come to a living being (whether called Man or not) devoid of moral consciousness; and between this point and that at which the moral faculty clearly presents itself, we must suppose a transition-period in which the distinctly moral consciousness is gradually being derived and developed out of more primitive feelings and cognitions. All this seems necessarily involved in the acceptance of Evolution in any form." To me it seems merely a plausible and by no means a really necessary inference. There may have been a continuous process of evolution in psychical capacity from the lowest animal to the highest man, and if so it must have been only at some definite point in that evolution that moral distinctions could be recognised and moral feelings entertained; but if moral distinctions be in themselves quite different from distinctions of expediency and inexpediency, the apprehension of them cannot be said to have been derived out of experiences of expediency and inexpediency merely because these experiences helped to develop intellect to a stage at which it was capable of grasping something higher than themselves. If there be a moral law and moral distinctions which are quite original and peculiar, a long process of evolution may be required before mind can apprehend them, and yet their apprehension may be no product of the process of evolution but a thoroughly original and peculiar act, the reflex of the objective reality. All that evolution can in such a case be legitimately described as doing, is rendering the mind capable of entertaining a new and original idea and the feelings which may accompany it. The new cognition instead of being a prolongation of the experience of pleasure or pain, expediency or inexpediency, may be a perception of a law in the spiritual life other than these,—one to which pleasure and expediency must be subordinated and, if need be, sacrificed. Thirdly, the view of the evolutionists who adopt the associationist theory in substance while greatly modifying it in form is not likely as regards the question under dispute to satisfy those who have rejected the theory of associationism pure and simple. Evolutionists of this class assume that mere experiences of utility can, if sufficient time be allowed them to work in, explain the sense of duty; that what the associationist supposes to take place in each individual during the early years of life can really be effected although only in the course of ages. But those who deny the associationist theory are sure to deny this also and to demand the most rigorous proof of it. Believing utility and duty to be essentially distinct, they cannot be expected to grant that the one can pass into the other by mere length of development or that the one can be traced back to the other merely by being pushed out of sight into dim and distant ages. Their demand for proof that the one ever has passed into the other can certainly not be met by a reference to the general evidence in favour of evolution. For, evolution, as has been already said, does not necessarily imply the transition in question; and, further, general presumptions in favour of evolution do not prove it to be without limits. It may be generally true and yet have many limits. The distinction between moral and expedient may be one of its limits.

The assumed and, as I believe, erroneous principle we have been considering comes into operation generally at more points than one. It is not only needed where love of pleasure is supposed to pass into love of virtue, but where virtue from being loved as a means comes to be loved disinterestedly for its own sake. This last is a point where the associationist theory signally breaks down. It is inconceivable that any amount of association of virtue and pleasure should end in the love of virtue apart from pleasure. It is especially inconceivable if virtue be in its real nature a life for happiness, since in that case to love it "disinterestedly for its own sake" is to love it as what it is not —is, in other words, a diseased and unnatural love of it, as avarice, to which the associationists so persistently liken it, is a diseased and unnatural love of money. It will be said, however, that this passion of avarice shows at least that desire may be transferred from ends to means, from happiness to money, and that virtue may come to be desired, like money, for its own sake, on the principle of association. But is the nature of the secondary and factitious desire named avarice correctly understood by those who reason thus? It is necessary to consider this question because the whole doctrine of the associationists on the point under examination has no other evidence in its support than their analysis of avarice. They speak vaguely of its being confirmed by "the other secondary desires," but avarice, the "typical instance," as Prof. Bain calls it, is the only instance which they really adduce. It would take considerable ingenuity to show that the other secondary desires supply relevant proofs, and the associationists do not expend their ingenuity in the attempt, but invariably bring forward at once "the typical instance," and after having argued that money from being loved as a means may come to be loved as an end, add "the same thing may be said of many other desires," or some equivalent assertion. Gay led the way. He wonders why philosophers who are fond of postulating original principles and senses have never thought of contending for a *pecuniary* sense, and then explains that "by dropping the intermediate steps between money and happiness, men join money and happiness immediately together, and content themselves with the phantastical pleasure of having it, and make that which was at first pursued only as a means be to them an end, and what their real happiness or misery consists in." Hartley's way of putting it is much the same: "Since ideas exciting desire are heaped upon money by successive associations perpetually recurring, the desire of it in certain sums and manners, viz., such as have often recurred with the concomitant pleasures, must at last grow stronger than the fainter sensible and intellectual pleasures; so that a child shall prefer a piece of money to many actual gratifications to be enjoyed immediately." I might quote passages to the same effect from Sir James Mackintosh, James Mill, Prof. Bain, &c., but it will be enough to cite these words of J. S. Mill: "Virtue is not the only thing originally a means, and which if it were not a means to anything else, would be and remain indifferent, but which by association with what it is a means to, comes to be desired for itself, and that too with the utmost intensity. What, for example, shall we say of the love of money? There is nothing originally more desirable about money than about any heap of glittering pebbles. Its worth is solely that of the things which it will buy; the desires for other things than itself, which it is a means of gratifying. Yet the love of money is not only one of the strongest moving forces of human life, but money is, in many cases, desired in and for itself; the desire to possess it is often stronger than the desire to use it, and goes on increasing when all the desires which point to ends beyond it, to be compassed by it, are falling off. It may be then said truly, that money is desired not for the sake of an end, but as part of the end. From being a means to happiness, it has come to be itself a principal ingredient of the individual's conception of happiness. The same may be said of the majority of the great objects of human life — power, for example, or fame; except that to each of these there is a certain amount of immediate pleasure annexed, which has at least the semblance of being naturally inherent in them; a thing which cannot be said of money."

Now, what is the leading assumption or assertion in this passage and in the other passages quoted or referred to? It is that avarice has money alone for object, that money is its sole and final end, and not in any form pleasure or happiness with which it was originally connected. It is that the process of association which formed it went on until it became so close as entirely to break. Is this, then, more than a mere assumption? Is it an assertion for which evidence has been produced? The slightest consideration is sufficient to show us that the answer must be in the negative. The assumption has passed down from psychologist to psychologist simply because uncriticised. To the avaricious man money is not a final object at any period of his life. Instead of associating it less with pleasure when the passion which possesses him is fully formed than when merely forming, his slavery lies in the vastly greater power which such association has over him. He cannot bring himself to use his money rationally as a means to happiness. But why? Simply because he has come to regard it as a sign or symbol of all its possibilities, a complex of a host of imaginary means, and to love it as a sign or symbol of far more power or pleasure than it could ever procure if used rationally as a means, that is if expended once for all in a definite manner. The perversion in avarice is not the substitution of a means for an end, but the substitution of a symbol of many merely possible means for the single actual means which is all that money can be if spent. It has its root in a diseased imagination which at the sight, mention or conception of money starts a multitude of trains of association which tend to make a wise and liberal use of it difficult or impossible. Pleasure is not overlooked or despised, but the pleasures of imagination are preferred to those of reality. There is no such thing as "the love of money for its own sake." It is beyond the power of a rational being to love gold simply as gold, silver as silver. Mere matter cannot of itself be an object of affection to a spirit. The miser loves his hoard because it appears to him as the visible, tangible embodiment of more pleasure than it could ever buy for him. He exaggerates the power that lurks in his glittering and clinking pieces, and loves them for that power, not for their own sake. Money—visible, tangible money—is the means of procuring pleasure, but the love of pleasure is not transferred to visible and tangible matter of any sort, size, or quality: only the pleasure of having the power of procuring comfort, influence, respect, &c., is preferred to the immediate pleasure of using it to procure these things. Were gold and silver demonetised—were a law passed and enforced forbidding their being employed as media of exchange or even bought and sold—it would suffice to make the greatest of misers aware of this in order to cure him completely of his love for them. An instantaneous alteration of his feelings in regard to them would show that he had never loved them irrespective of their value in exchange, never loved them for their own sake. The most avaricious man ceases to find pleasure in a bank-note the moment he is informed on good authority that it has lost its power of purchasing objects of desire. If he had come to "desire it for itself, and that too with the utmost intensity," the information must have left his love for it undiminished, unaffected.

This disposes of the associationist argument from avarice. It is an argument which rests wholly, in my opinion, on an erroneous analysis of the desire.

The laws of association do not explain how virtue, if at first loved merely as a means to happiness, comes subsequently to be loved for its own sake apart from happiness. In fact, were virtue at first loved and practised merely as a means to happiness, the natural effect of the laws of association would be gradually to weaken and obliterate the consciousness of virtue until it altogether disappeared. The laws of association do not separate means from ends by converting means into ends; they do undoubtedly tend to enable us to dispense with thought about means when pursuing ends—to cause whatever has been done merely for the sake of something else to attract ever less and less attention to itself until it wholly fades out of sight. In other words, there is a well-ascertained law of association—one of those which have been termed laws of obliviscence—directly inconsistent with the associationist theory of the origin of moral ideas.

The controversy between associationists and their opponents as to the origin of moral ideas is not, I fear, likely to be soon or easily settled. It has its source in the lowest depth of psychology; it rises out of a radical difference of opinion as to the very nature of consciousness. Is consciousness primarily cognitive or primarily emotive? Is thought the condition of feeling or feeling the condition of thought? Those who answer this question in opposite ways cannot fail to answer also in opposite ways the question as to the origin of moral ideas. If feeling be primary in consciousness, associationism, in supposing two or more feelings which have no moral character when taken separately to produce by their union a moral feeling, which, in its turn, gives rise to a moral idea, is perfectly self-consistent; if feeling necessarily presupposes perception or apprehension, if it is preceded and occasioned by cognition and can only be discriminated in consciousness through cognition, such a supposition cannot possibly be entertained. Now, unfortunately, the prospect of agreement at this point between the two schools is as yet but slight. They do not seem able even to understand each other. What appears to associationists certain looks to their opponents absurd, and *vice versâ*. Mere feelings, and even long and complex processes of mere feeling, are described by the former as undoubted facts; the latter utterly disbelieve that there are or can be such things. Again, does sensation not involve a variety of cognitive elements? Can a single sensation, even of the simplest character, be ever realised in consciousness otherwise than as an existence, as what is; likewise as one, as *a* sensation; as what I feel, as mine; as here and now, &c.? Can any sensation whatever be experienced except under the conditions of existence, time, number, relation, &c.? Those who in answering this question maintain that mere or absolute sensation, pure experience, is mere or pure absurdity, and that the possibility of sensation and experience is conditioned in the way indicated, seem to sensationalists to be loose thinkers who take the abstractions of intellect for the grounds of its existence and action. To anti-sensationalists, on the other hand, disbelief in certain intellectual conditions necessarily underlying sensation in every form is incomprehensible, and the reasoning which attempts to justify it seems to them strangely irrelevant. Deeper research and continued controversy conducted in a fair and tolerant spirit can alone bring about a mutual understanding. Until that is reached no definite settlement either of the fundamental controversy or of those which proceed from it is to be expected.

The observations contained in this paper require to be confirmed and illustrated by an examination of the chief attempts which have been made to account for the origin of moral ideas on associationist principles,—an examination which time and space forbid our undertaking at present.

R. FLINT.

III.—EVOLUTION AND ETHICS.

MR. HENRY SIDGWICK'S article in the first number of MIND (p. 52) may be taken, if I rightly understand it, as a friendly challenge to those who hold the theory of Evolution, and hold it not as a mere speculation but as a working belief, to explain how far and in what way they find it to bear upon the practical questions of Ethics. I shall here attempt to satisfy this request on some points, in so far as one man speaking for himself can do so. To the best of my knowledge I shall not utter anything new or singular; I shall only set forth, as I believe, that which I hold in common with at least one friend, or have learnt directly or indirectly from others whom I account my masters; at the same time it is hardly possible in these matters to put one's thoughts in a form which even those one most agrees with would choose for themselves, and it seems really the least egotistical course to avoid any pretence of being a spokesman. I shall therefore continue, as I have begun, to speak as for myself alone. Moreover, I consider that I am not speaking with an enemy in the gate, but as one taking counsel with a friendly fellow-citizen; and my purpose is rather to seek how we may enlarge our common ground of action in the present than to track out the remoter differences which might arise in hypothetical conditions. I shall not even dwell upon the strictly polemic value of the historical method of discussion proper to the theory of Evolution as against divers others whom we should deem our common enemies, although I think it a weapon of great power, and would not be supposed to underrate it in this respect. Thus much it seems needful to put forward by way of limitation and warning.

Mr. Sidgwick's first point is that the theory of Evolution, taken in its general form, "has little or no bearing upon ethics"; in other words, that the establishment, as a matter of natural history, of the conclusion "that the moral faculty is derivative and not original" gives little or no help towards determining a final test for the actual worth of moral judgments. And so far as he carries his remarks on this head I see no reason to differ from them. It is plain that if our various organs and faculties of mind as well as of body do not come ready-made, but have all grown up, on the whole, in one and the same kind of way, the fact that they have so grown up cannot of itself afford the grounds of any comparison or decision as between different outgrowths of the general process. No single thing can be called good or bad, better or worse, simply for having grown like all other things: unless, indeed, we assume beforehand, as some persons do, that a world in which everything has grown is in itself, by some transcendent necessity and in some transcendent sense, bad and not worth living in; but with such persons we are not now concerned. When we come down to the particular topic, however, we find ourselves on a rather different ground. There may be a general presumption in favour of a given faculty being derived, but there is no complete proof until it is shown in what manner it was derived. And this kind of proof, in so far as we can attain or approach to it, is capable of leading to specific inferences of real value. Speaking from the most general point of view, Mr. Sidgwick observes that "surely there can be no reason why we should single out for distrust the enunciations of the moral faculty, merely because it is the outcome of a long process of development." It is probably still needful to mark this point in the first instance; but then there is no need to stop short at such a merely neutral conclusion. We are not content with saying that the faculty came from somewhere; we must seek to understand where it came from, and the nature of the process by which it was developed: and this is the knowledge of which Mr. Darwin has laid the foundations in his work on the *Descent of Man*. Now it seems that when we know this, we have at least some of the materials required as the ground of a rational trust or distrust of the faculty in question. If we can tell with reasonable probability what it is, and how it works, we can also tell with a corresponding probability what its judgments really mean and imply. To that extent, then, we shall be the better able to determine their worth, whatever our standard of worth may be; and this appears to hold good whether in fixing that standard we are guided in any degree by considerations drawn from the theory of evolution, or entirely disregard it. When we look at it historically, the existence of a certain moral sentiment shows that the social forces of which, according to the hypothesis, moral sentiments are the result, have been acting in a certain direction. And if by further and different inquiries we find reason to believe that under normal conditions and taken on a large scale the tendency of those forces is to promote conduct and rules of conduct such as we call *right* or *good*, then we shall also have some reason to conclude that in the absence of special circumstances it is reasonable to trust rather than distrust the "enunciations of the moral faculty." If we are satisfied that the process of development is on the whole towards an end which appears to us as right, then there is at least some scientific presumption in favour of existing morality, such as we find it in the judgment of the average right-minded man, and the burden of proof is on those who assert that in any particular case it requires correction. On this view the existence of a moral rule is *primâ facie* evidence of its validity, subject of course to be outweighed by positive external evidence to the contrary; as, for instance, by showing that it had its origin in an assignable mistake or fallacy, or that since it was established the conditions have materially changed. This is, of course, a rough and general conclusion, and will scarcely help us to a decision when we come to the newer and still unsettled questions of Ethics on which the judgments of right-minded men are found to differ. But it does not seem to me worthless on that account. Anyhow, considerations of this kind have in fact not been despised by pure utilitarians. They have been at some pains to analyse the existing principles of morals which are held binding by civilised men, and to exhibit them as implanted in the individual by frequently repeated experiences and expectations of pleasure and pain. They give a kind of history of the formation of the moral sense, and aim at showing that the motives which are active in that process are on the whole so determined as to encourage conduct which promotes the happiness of the community and to discourage the contrary. It is worth notice that this view is especially prominent in Grote's *Fragments on Ethical Subjects*—a small but golden book, which I take to be of the first importance as a contribution to the scientific study of morals. Now the history thus presented is just of the same kind as that which is given—I do not mean given as a finished account, but rather assigned as the next problem of research and scientific construction—by the theory of Evolution. What Mr. Darwin and Mr. Herbert Spencer teach us is to extend to the race as a whole the process and the conceptions which the English school of empirical philosophy has already applied, with great success, as far as it went, to the individual. They show us how the life of the race begets, and having begotten them strengthens from generation to generation, the social instincts which the simply psychological moralist assumes as existing in the average man, but cannot explain; and they further show that it is at least a rational question whether the specific working of those instincts, and the specific tendencies thereby produced in each generation, and passed on by tradition to succeeding ones, are not to some extent reinforced by direct physical inheritance. As to this last point, I admit that the determination of the shares borne in the work by the inheritance of tradition, as it may be called, and the inheritance of birth respectively, may be treated as a matter of detail; and I think we are bound to guard against premature affirmations on this head, and still more against underrating the work already done by psychology. There is a real danger of our becoming too prone to call in heredity on all occasions as a kind of *deus ex machinâ*. But in any case the general result stands the same, and may be resumed thus: the theory of Evolution furnishes us with a far more complete account than we had before of the whole genesis of the feelings which go to make up the Ethical Sanction, and leads to an explanation of one important set of the elements concerned, namely the sympathetic and social instincts, of which there was formerly no explanation at all.

It is to be understood that when I spoke above of a right-minded man I assumed with Aristotle that, apart from any question of definition, this (or any of the like forms of speech one may choose) is a fairly intelligible term, standing for a kind of man whom in practice we know where to seek and know quite well when we have found him. But as to the conception of Good or Right in itself, or the proper definition of it, I have so far assumed nothing, save that most people have in fact some such conception.

Let us now turn to those parts of Mr. Sidgwick's discussion which have to do with this conception as affected by the theory of Evolution. His difficulty seems to me to come shortly to this: Evolution is a progress of the species, taken as a whole, with tendencies determined in certain ways, and with what may be called a definite *purpose*,* so that the process appears at any time as if it aimed at realising a certain type, and may conveniently be so described; but how do we know that the type or end aimed at is rationally desirable as being in itself right or good? To this I answer that the demand for an absolute Good is not one which the theory of Evolution pretends to satisfy. Far from so doing, it rather leads one to see that the thing sought for does not exist. The notion of Good is itself secondary and relative, and presupposes an end already set before us. There is not a paramount end which we seek because it is good; there are things which we call good, and seek accordingly, because they make for the paramount end.† The Good of an individual is the preservation or welfare of the individual, and the Good of a species or kind is the preservation or welfare of the kind as a whole. Strictly speaking, we may apply the conception to any finite aggregate whatever, though it is not usual, nor does it seem at present worth while, to extend it in practice beyond the range of organic life. Still less are we limited as to the extent of the kinds or classes we may take within that range; for all living things upon the earth, for instance, the sun's light and heat are good, and contrariwise the various forces tending to make the earth in course of time unfit for life are bad. And one might even say that the dissipation of energy, so far as we can tell at present, is bad for all living things in the universe. But if any one says that it is bad for the universe—which amoumts to saying it is bad absolutely—there I cannot follow him; either he is exercising the anthropomorphic imagination which is excellent in poetry but naught in science, or he is using the words good and bad in a secondary and metaphorical sense.

If then it is further asked, as Mr. Sidgwick in effect seems to ask, how we are to measure the good of one species against the good of another, I answer that they are not commensurable. The good of the cat is (among other things) to catch mice. The good of the mouse is, in like manner, to escape being caught by the cat. There is obviously no method of reconciling these two ends. Man, however, finds it convenient for his own ends that the cat should catch mice, and therefore considers this good in a human sense, and encourages it. But when the scale of the action is changed, and we find a larger kind of cat whose good is to catch animals useful to man, and sometimes men also, then we call its doings evil, and put them down with a strong hand. We fondle the cat and shoot the tiger; but the cat and the mouse, the tiger and the bullock, are, for all I can see, "*primâ facie* on a par in respect of goodness." There is, indeed, a kind of elliptical manner in which one might perhaps call one species better than another, meaning that as a matter of fact it has been, or is likely to be, more successful in compassing its own good. I am disposed to agree with Mr. Sidgwick that such a form of speech is harsh and misleading; for one might find, I suppose, various low parasitic organisms to be *better* in this sense than the higher animals whom they infest.*

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* I borrow this use of the word (as not implying design or conscious intention) from my friend Professor Clifford: and I am myself inclined to suggest a corresponding revival of the term Final Cause.

† *Cf.* Spinoza, *Eth.* Part 4, Pref.: Per *bonum* . . intelligam id, quod certo scimus medium esse, ut ad exemplar humanæ naturæ, quod nobis proponimus, magis magisque accedamus: per *malum* autem id, quod certo scimus impedire quo minus idem exemplar referamus.

Let us pause a moment on these terms *high* and *low* which have thus fallen across our path. By the scheme of Evolution in natural history we are furnished with a certain ordered scale of life (or perhaps I should say several scales) in which (or in one of which) we assign a place with more or less exactness to any given type and call it *higher* or *lower* accordingly. To define the elements of this measurement is the office of biology, not of philosophy; and it may be difficult to make it accurate or even applicable when it is sought to compare terms belonging to distinct and widely divergent series, such as an insect and a vertebrate; but it seems in itself independent of the notion of *good* and the measure of goodness, either in the proper sense or in the doubtful sense just mentioned. There is however an almost constant association of the two kinds of measurement in thought, so that the *higher* creature is conceived as also *better*, and this for the following reasons. First, those variations are found on the whole to be *good* for the individual and the race, that is, to further their welfare, which are in the direction of a *higher* type. The higher animal is more helpful and better able to meet new conditions; as witness the climatic range of man and the animals trained by him;† at least this appears to hold good as between forms that are near enough to be fairly comparable. Next, we men are accustomed to think the higher animals good, and to desire their welfare at the expense of the lower ones, inasmuch as they are in mind and body more like ourselves, and are capable of sharing in our sympathies, and to a certain extent even in our social affections; and in part also (but I think by no means principally) because they are more useful to us. But whatever "rising in the scale of existence" may mean, I do not hold it to be the same thing as becoming better, save as experience may ascertain the two processes to coincide.

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* I speak in ignorance and under correction, but it is enough for my purpose that the thing should be conceivable.

† Mr. Sidgwick appears to think otherwise (p. 59): the question, however, is not very material in my view, and moreover is one of pure natural history.

It seems needful to stop again at a definition. Since I say that good is a relative term, and refers to the preservation or welfare of the thing whose good is considered, it may be asked how I define preservation or welfare. Now the only answer I can give is that all attempts at defining it seem as yet premature, and that until we have fuller knowledge and are more at ease in the appropriate habits of thought, our idea must remain a provisional one. Certainly I am not prepared to suggest at my own risk any amendment to Mr. Darwin's statement of it.* Neither will I be tempted to set it up as an hereditary intuition, though I am persuaded it would serve the turn full as well as many other axioms and intuitions that have made no small stir in philosophy. But, in truth, the provisional notion we have is sufficient on the one hand as a base of more exact inquiry, and on the other hand as a guide to practical conclusions; especially when we bear in mind that the object directly sought at any time must by the nature of the case be a type not widely different from that which exists. There may therefore be a knowledge, rational as far as it goes, of the welfare of any group or race, and of the conditions on which it depends, and an art corresponding to that knowledge. And I should describe Ethics as consisting in a knowledge, or rather a mixed knowledge and art such as we call practical science, that deals in this way with the welfare of mankind. Those habits and conduct are in an ethical sense *right* which further that end; those are *wrong* which hinder it. But inasmuch as the whole of mankind is too large to be profitably considered all at once for any practical purpose, the end of Ethics is practically limited for most purposes to the society where one lives and whereof one is, so to speak, a working unit. Yet the welfare of societies and races with whom one has commonly few or no dealings is admitted as part of the end, and is actively treated as such on special occasions.†

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* I may say however that Mr. Sidgwick's verbal criticism (MIND I., p. 58, n.) seems to be just; only the time for verbal criticism is hardly come.

† Two passing remarks may be allowed here. 1.—The welfare of many other animals enters, to some extent, into our developed conception

Such then is the manner in which the doctrine of Evolution appears to me to supply material parts, at least, of the prolegomena to Ethics. But the further question may be asked, Why should the welfare of mankind, and not of this or that man whose action is to be determined, be taken as the paramount end? To this I reply that every science must set out from a first word or fundamental assumption, and this is the very root-word of Ethics. Man wants morality because he is a social animal, and cannot live otherwise than in society; were there not a society paramount to the individual, there could be no ethics. The names themselves bear witness to it; *mores* and ἦθος denote exceedingly complex forms of action and feeling which cannot exist apart from social relations. A solitary being might acquire a want or habit; he could never have laws, customs or rules. The scope and objects of Ethic are altogether social, and it starts from the social assumption. Egoistic Hedonism is in theory conceivable as a method of life, but I refuse to call it a Method of Ethics.* And the problem of the ultimate sanction of Ethics in individual thought, discussed with such admirable wealth of dialectic in sundry parts of Mr. Sidgwick's book, and resumed in his last chapter, is to me not an ethical problem at all. I do not know whether a complete answer can ever be given to it; but I doubt whether the question can strictly be deemed even rational, and account it at best a merely curious one. This fashion of treating the matter will at first sight, perhaps, appear new and overbold. But the same assumption is made, though less openly, by the "old-fashioned Utilitarianism,"† when it is said (see Mr. Sidgwick's article, MIND, No. I, p. 60) that "we have no rational ground for preferring" the happiness of this or that individual "to any other happiness." For, when one looks closer into this, it includes more than the simple proposition that A has no rational ground for preferring

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of the End, the domestic ones being indeed a real though subordinate part of our community, and others being associated with ourselves in different degrees by likeness and sympathy: but this would be too long to work out now. 2.—Politics, at least on the practical side, must in any view be an offshoot of Ethics. But I should like to revive the large classical sense of the word, so that the theoretical part of Politics might cover all that is now called by the barbarous name of Sociology.

* Even habitual law-breakers are not egoists, but are banded against mankind in a crooked bond of their own, and governed by a sort of perverted morality. The diseased growths of the body politic, as of the body natural, have still the characters of organic life.

† For a yet older witness I may cite the first great poet of Christendom—

Ond' egli ancora: Or di': sarebbe il peggio
Per l'uomo in terra, se non fosse cive?
Sì, rispos' io; *e quì ragion non chieggio.* Dante, Par. VIII. 115.

the happiness of B to the happiness of C. That is not enough; we want something much greater and harder, namely that A should not prefer his own happiness to the happiness of either B or C; and when we say that he has no rational ground for so doing we renounce the self-regarding point of view, and speak in the name of the commonwealth, and with the judgment of a collective, not an individual, reason. The Rule of Equity and Rule of Benevolence adopted by Mr. Sidgwick as axioms present themselves to me rather as corollaries of the one fundamental axiom. Again, it is sufficiently clear that the moral sentiment and the moral sanction, such as they exist in fact, are in their nature social and work towards a social end; for the exposition of this I must again refer to Grote's posthumous essays. "The safety, happiness and welfare of the society" are found in practice, as Grote says, to be aimed at, skilfully or unskilfully, by the moral rules of all peoples. How this came to pass is doubtless a question of great interest; and here again the doctrine of Evolution fitly steps in to complete our historical prolegomena. Filling up a blank in knowledge which no purely ethical speculations could fill, it shows us decisively that the social sentiment of morality, such as we now find it, is itself the offspring of social life, and could have had no being otherwise.

But again, when we have assumed the common weal as the End or Final Cause of Ethics, how are we to determine what conduces to it? There seems to be an impression that some followers of Mr. Darwin are eager to forsake the slow and toilsome ways of experience, and settle all disputed points by deduction from the theory of Evolution. For my own part I must say plainly, though perhaps it is already contained in what has been said above, that I should regard any such attempt as altogether mistaken. I think, as at present advised, that Mr. Darwin's test of Welfare and Bentham's test of Happiness, different as they are in conception, yet so far coincide for most or all purposes of immediate action that there need be no break between them in practice, and the method of dealing with practical questions remains very much the same. Thus I have no hesitation in accepting Mr. Sidgwick's account of the "Unconscious Utilitarianism" of common sense (*Methods of Ethics*, Bk. 4, Ch. 3) with little or no change beyond what is suggested by Mr. Sidgwick himself in his note at the end of the chapter; I should say that not Happiness but Welfare is the dimly descried goal of common sense, and the quality of conduct that tells in the long run is not Mr. Sidgwick's "Felicific Quality," but something slightly different which might be called *welfaresomeness;*

but I quite agree with him that the discrepancy may for present purposes be neglected. Again, almost all Mr. Sidgwick says in the two following chapters on the relation of theoretical ethics to existing Positive Morality seems to me both true and opportune, and I can welcome it without reserve. I see no reason to suppose that empirical utilitarianism, or something only verbally distinguishable from it, will be superseded as a working method in either Ethics or Politics within any time we can reasonably look forward to. Moreover I hold that the question put by Mr. Sidgwick at the end of his paper, namely, what is to be done when reasoned conclusions fall out with unreasoned (I will not say unreasoning) sentiment, does not admit of any formal answer. However, I will try to set down some of my own general notions on the matter. The first impression of a right-minded man's ethical judgment on a given case is always of some worth, and often of great worth. That worth consists in its being representative; that is, the man's judgment is evidence of the existence and contents of an established rule of morality; for we presume that other right-minded men will judge likewise. The strength of this evidence will of course vary; there are elementary cases where it is all but conclusive, and doubtful cases where it fails, in other words, where in fact no rule exists; yet in the case where it fails, the judgment still has a certain representative worth. For even then it is hardly ever solitary, but stands for one of the social tendencies among which the final choice is to lie; though it cannot give us a rule, it can show us out of what kind of materials a rule is being made. I have already said that on the Evolution-hypothesis there is a presumption in favour of existing moral rules; and I may add that in a civilised and free community like our own that presumption is exceedingly strong. We can have little sympathy, for instance, with a man who professes to be assured by his own conscience that the institution of property is immoral, if he acts upon the bidding of his conscience and suffers the ordinary consequences. In really doubtful cases, on the other hand, I should say that the unconscious process of intuitive moral judgment would for the most part be a safer guide to an ordinary man than any process of explicit reasoning;* but this depends after all on the man's individual temper and character, and the nature of the particular case. Explicit reasoning is liable to be biassed by desire; but a man of trained reason and controlled will may guard against this; and in some cases, again, desire may be absent or evenly balanced. But the whole topic is too special and intricate to be now pursued. The main thing to remember, as I would submit, is that there are only two kinds of difficult cases; either one can find no rule that is applicable, or one cannot accept the rule that exists; and both kinds are in practice quite exceptional. I think one seldom performs a conscious calculation with reference to happiness or welfare except on the sort of occasions where it might be said to be morally wrong to choose without deliberation, but none of the alternative courses of action can be called wrong in a moral sense after it has been deliberately chosen.

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* I note that Mr. Sidgwick recognises (*Methods of Ethics*, p. 202) a "tact or trained instinct" in ethics considered as the Art of Life, analogous to the instinctive skilled judgment of the expert in a special art.

There is one last word to say concerning the supposed claim of the doctrine of Evolution to reconcile the conflict between the Intuitional and the Utilitarian schools: we are expected, it would seem, to produce Mr. Darwin as a *deus ex machinâ* in the strictly dramatic and classical sense. Now there are several kinds of reconciliation. Opposing parties are, generally speaking, not reconciled except by some sort of compromise: and to have a clear understanding of the reconciliation one must know on what terms the compromise is made. They may be terms of equal giving and taking, or nearly so. But the man who agrees with his adversary quickly while he is in the way may no less be said to be reconciled with him, and the friend or arbiter who advises this course to effect a reconciliation. And it appears to me (as well as to Mr. Sidgwick) to be rather in this fashion, if at all, that the parties to a long and stubborn contest are to be reconciled in this case. For the doctrine of Evolution, while it shows that the criticisms of Intuitional moralists on the standing expositions of the Utilitarian system are to some extent well founded, at the same time destroys the foundation of Intuitional systems more utterly than Utilitarian criticism had even attempted to do. If Bentham is right, Intuitionists are wrong; if Mr. Darwin is right, they must be wrong. The Intuitionist denies that moral sentiment can be accounted for by the materials given in the experience of the individual; but he denies it only for the sake of establishing a scheme of absolute and immutable morality. What comfort shall he take in being told that his first position is indeed in a manner right, that manner being wholly different from what he supposed, when in the same breath he is told that his absolute and immutable morality is immutably and absolutely a chimera? The Utilitarian, again, strives to find the law of the common weal in the growth and motives of the single mind: shall he be discomfited, or shall he not the more rejoice, when a wider insight summons him to behold the stars in their courses fighting for him, and the power he sought even at hand, unperceived but irresistible, the fruit of man's common life and his heritage from all generations? There is no reconciliation between the right and the wrong way of search, between the path of patient experience and the flight of unwarranted assumption. The theory of Evolution has come to do great things in the field of mental philosophy, as well as in that of natural philosophy—a term English workers have been laughed to scorn for retaining, and that is now seen to be more true than ever: but this new learning that has sprung forth under our eyes, and for the most part, as our children will be proud to think, under the hands of living Englishmen, has come not to destroy but to fulfil the work of those English leaders of thought who were foremost in proclaiming that there is but one reason and one rule of truth for matter and spirit, for man and the world, for the greatest things and the least.

FREDERICK POLLOCK.

IV.—THE ORIGINAL INTENTION OF COLLECTIVE AND ABSTRACT TERMS.

Is it not a most striking illustration of the power which language can exercise even on the most vigorous and independent minds, when we see how Mill had persuaded himself that most metaphysical difficulties inherent in the conceptions of Matter and Mind could be removed by declaring* that Matter was nothing but the "permanent possibility of sensation," Mind nothing but the "permanent possibility of feeling?" There is a certain want of clearness in thus expressing the opposition between the Ego or Mind and the Non-Ego or Matter, and I doubt if many will approve the use which Mill makes of the words sensation and feeling, restricting the former to a passive, the latter to an active sense. However, a philosopher who modifies thought has a right to modify language, and we have only to remember that Mill, in his dialect, uses the expression "possibility of sensation," as applied to the Non-Ego, in the sense of the possibility of being the object of sensations; while "possibility of feeling," as applied to the Ego, is intended to convey the possibility of being the subject of feelings.

But what is of much greater consequence is this, that Mill should have imagined he could eliminate, or at least sublimate, the idea of substance, both in the Ego and the Non-Ego, by using an abstract noun, possibility, instead of a concrete noun, the possible, or, as we used to say in our own, half classical, half mediæval dialect, the cause, the substance, the subject.

* *Examination of Hamilton's Philosophy*, pp. 198, 206.

What is the nature of such words as possibility? They clearly express a quality, and therefore a quality of something. When we speak of a thing as feasible, we mean that it can be done; when we say it is destructible, we mean that it can be destroyed. Afterwards, if we want to speak of many things being feasible or destructible, our language enables us to form new substantives from these adjectives, and to speak of the feasibleness, the destructibility, the possibility of things. Language will even allow us to go a step further, and to say, for instance, there is a possibility of something being done, but it is here that language begins to react on thought and tempts us to speak of possibilities, as if they were things by themselves, and different from the things which are possible.

One of the best known instances of what I call philosophical mythology is the word faculty. From *facere,* to do, was formed *facilis,* easy to do, or easy to be done; e.g. *res factu facilis,* a thing easy to be done; *facilis ascensus,* an easy ascent. *Facilis* means also ready, e.g. *facilis ad dicendum,* ready or quick to speak. From this adjective we have *facilitas,* the quality of being easy, also the quality of being ready. Besides *facilitas,* we also find *facultas,* a word generally represented as a contraction of *facil*(*i*)*tas,* but which may be derived directly from the old Latin *facul. Facultas* means chiefly the power of doing, e.g. *facultas pariendi;* then the means of doing, supply, resources. In modern languages, however, this word has assumed a much wider development. We speak of the faculty of hearing, the faculty of perceiving, imagining, remembering, reasoning; we speak of the faculties of the mind, and we at last divide these faculties, place them side by side as independent powers, often forgetting that all the time they can claim no subjectivity whatever, that they are no more than qualities of the same subject, and that all we really mean when we say that humanity is endowed with the faculties of seeing, remembering, imagining and reasoning, is that every man can see, remember, imagine, reason, &c.

It is curious that the very school which has always protested most strongly against the abuse of these abstract nouns, which has waged war to the knife against the faculties of the mind, though not always to the advantage of a clear and systematic treatment of psychology, should in metaphysics fall into this very trap. We can imagine philosophers denying altogether the reality of any such thing as substance; we can understand why Mill looks upon that category simply as the result of custom, not as a *sine quâ non* of human thought. But whatever the origin of our category of substance may be, it is through it and with it alone that we can conceive quality.

A quality is inconceivable without reference to a substance, and however much that original coherence may be forgotten, we always find it is there, whenever we go back to the deepest foundation of our intellectual fabric. We may speak of possibilities, we may trust in possibilities, we may be even frightened by possibilities, but if we look more closely, what we trust in and what we are frightened by are always things possible.

If therefore Mill and his followers imagine that by defining Matter as the permanent possibility of sensation, and Mind as the permanent possibility of feeling, they have removed the difficulty of Kant's *Ding an sich*, they are mistaken. Their possibility of sensation, if properly analysed, means things or substances which can become objects of sensation; their possibility of feeling means things or substances which can become subjects of sensation.

However we may fight against the necessities of our reason, reason has its revenge. It is, for instance, only another attempt at avoiding the admission of something substantial in the Ego, which leads Mill and his followers* to define Mind as a series or a succession of feelings. What are series or succession but the germs of collective words, many of which develop into abstract nouns? A series or a succession means things succeeding each other, and if these things are feelings, then feeling again is what might be called an adjectival substantive, expressing a quality, *status*, or act of somebody. Leave out that somebody, that substance, that subject, that x, and our mind refuses to act, as Mill has been honest enough to admit himself. For, as he says, (p. 212):—

"The thread of consciousness which composes the mind's phenomenal life [another *alias* for the Ego as a substance] consists not only of present sensations, but likewise in part, of memories and expectations. Now what are these? In themselves, they are present feelings, that is of present consciousness, and in that respect not distinguished from sensations. They all, moreover, resemble some given sensations or feelings, of which we have previously had experience. But they are attended with the peculiarity, that each of them involves a belief in more than its own present existence. A sensation involves only this: but a remembrance of sensation, even if not referred to any particular date, involves the suggestion and belief that a sensation, of which it is a copy or representation, actually existed in the past: and an expectation involves the belief, more or less positive, that a sensation or other feeling to which it directly refers, will exist in the future. Nor can the phænomena involved in these two states of consciousness be adequately expressed, without saying that the belief they include is, that I myself formerly had, or that I myself, and no other, shall hereafter have, the sensations remembered or expected. The fact believed is, that the sensations did actually form, or will hereafter form, part of the self-same series of states, or thread of consciousness, of which the remembrance or expectation of these sensations is the part now present. If, therefore, we speak of the Mind as a series of feelings, we are obliged to complete the statement by calling it a series of feelings which is aware of itself as past and future: and we are reduced to the alternative of believing that the Mind, or Ego, is something different from any series of feelings, and possibilities of them, or of accepting the paradox, that something which *ex hypothesi* is but a series of feelings, can be aware of itself as a series."

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* M. Taine in his classical work, *De l'Intelligence*, Vol. I, p. 378, expresses the same views in even more determined language: "Le moi n'est lui-même qu'une entité verbale et un fantôme métaphysique. Ce quelque chose d'intime dont les facultés étaient les différents aspects, disparaît avec elles; on voit s'évanouir et rentrer dans la région des mots la substance une, permanente, distincte des événements. Il ne reste de nous que nos événements, sensations, images, souvenirs, idées, résolutions: ce sont eux qui constituent notre être; et l'analyse de nos jugements les plus élémentaires montre, en effet, que notre moi n'a pas d'autres éléments." What is the meaning of *nos événements*, if not *événements de nous*, and if these *événements* are something real, might we not turn M. Taine's illustration (I. 385), that one cannot hang any but a painted chain on a painted hook, against him by saying that one cannot hang a real series of *événements, sensations, images, souvenirs, idées, résolutions*, on a painted *Moi?*

Nothing can be more frank and honest; only, instead of saying with Mill that we are here "face to face with that final inexplicability, at which we inevitably arrive when we read ultimate facts;" and instead of comforting ourselves with saying, that one mode of stating it only appears more incomprehensible than another, because the whole of human language is accommodated to the one, and is so incongruous with the other that it cannot be expressed in any terms which do not deny its truth,—might it not have been better, if Mill had examined his own language more closely, and asked himself what could be meant by a series, a thread, a succession? A succession of feelings, no doubt, cannot be said or thought to be aware of itself as past or future, but an Ego, a Subject, an *x*, or whatever you like to call it, of which this succession, *i.e.*, these succeeding feelings are qualities or attributes, may well be thought and said to retain a feeling, not for one moment only, but for a longer or shorter time; and the same subject may also, by means of the same retentive nature of former feelings, and by that very law of association which Mill has so fully illustrated, expect one feeling to arise again, whenever another feeling, with which it was frequently connected, has arisen.

Language, as I have often said, always revenges herself whenever we do violence to her, or whenever we forget her antecedents. At first sight a series, a succession, a thread may seem a very different linguistic expedient from the termination *tas* which we found in *facultas*, and which is used to form abstract nouns. Yet what was the original purport of such words as *juven-tas*, if not a series, a succession, a class of *juvenes*, and of all things belonging to them? What was *posteritas*, if not a series of *posteri?* What was *civitas*, if not a number of *cives?* The growth of meaning in the derivative *tas*, though long forgotten in Latin, Greek and Sanskrit, can still be watched, if we have but eyes for the secret cunning of languages. Taking *juventas* or *juventus* in its original meaning, succession, thread, class of young men, the Romans could well form such sentences, as *cum omnis juventas, omnes etiam gravioris ætatis eo convenerant*, when the whole youth and also all of maturer age were come together. *Princeps juventutis* would be the chief of their youth, *i.e.* of all the young men. *Juventas pugnare debet* would mean the young men must fight; *juventas facile decipitur*, young men are easily deceived, or *credula juventus*, credulous youth. Now in credulous youth, the numerical slowly glides into the more abstract meaning, and so we go on to *tempus juventutis*, the time of youth; *gaudia juventutis*, the pleasures of youth; *robur in juventate*, the strength in young men, or the strength of youth, till at length the abstract conception preponderates; *juventus* becomes all that belongs to youth, and is at last endowed with a new substantival form in the name of the goddess *Juventas*, to whom Lucullus dedicated a temple in the Circus Maximus.

To us the formation of abstract nouns, such as *facul-tas* from *facul*, *juventas* from *juven-is* is so familiar that we hardly think how, at some time or other, the composition of *facul* with what we call the suffix *tas*, or *tâti*, must have been an individual act, performed with a definite purpose. That act took place at a time which escapes chronological measurement; but whenever it took place it must have been a rational act. As long as we know Latin it possesses the suffix *tas, tâti-s;* as long as we know Greek it possesses the suffix *της, τητ-ος;* as long as we know Sanskrit it possesses the suffix *tâti-s*. Therefore, long before Homer, long before the Veda, long before 1500 B.C., *tâti* had become what we call a suffix, *i.e.*, a purely formal element. In 1500 B.C., Sanskrit must have been separated from Greek and Latin for a very long period of time, for the Sanskrit of that time is less primitive in several respects than the Latin of Cicero. Therefore, not only would it be impossible to represent Latin as derived from Sanskrit, such as we know it in the Veda, but it will be necessary to admit that on some points Sanskrit in 1500 B.C. had diverged more from the common Aryan type than Latin had in the time of Cicero. True, no method of calculation will enable us to fix the time when Sanskrit and Latin separated, but I believe that, if on other than linguistic evidence that date were fixed at 10,000 B.C., the student of language would have no difficulty in accepting it. At that remote period the word *tâti*, whatever its origin may have been, must have been used so frequently already as to have assumed a merely formative and formal character, for it is in that formal character alone that we find it in Sanskrit, Greek and Latin. Before, however, such a suffix as *tâti* became purely formal it must have had an independent and substantial existence. It must have had a meaning, and that meaning, if we could discover it, would reveal to us the first truly historical germ of what we now call the conception of collective and abstract nouns. I am not myself a great believer in that microscopic analysis of grammatical suffixes and terminations with which Bopp and some of his followers have made us familiar. If I am told as a fact that *thas*, the termination of the second person plural in Sanskrit, the Latin *tis*, was originally a composition of *tva-tvi*, thou and thou, what is stated as a fact seems to me to deserve at the utmost the name of likelihood, and even likelihood in such cases seems often to dwindle down to mere possibility. Still the principle remains that, whatever is now purely formal in language, must at some time or other have been substantial, though we may admit our inability to trace all formal elements, such as we find them, back to the earlier stratum of language whence they arose. We can easily read the origin of such suffixes in English as *ship* (friendship), *dom* (freedom), *less* (useless), *full* (useful); but when we come to *ness* (ful-ness), or *ish* (fool-ish), we cannot dig deep enough to reach the soil from which they drew their life.

With regard to the suffix *tâti*, Latin *tas, tatis*, English *ty*, one of the oldest Aryan suffixes for forming collective, and afterwards abstract nouns, I shall not venture to speak positively as to its original purport. It has been explained by a very distinguished scholar as a combination of two suffixes *tâ* and *ti*, which are used by themselves to form abstract nouns, and the origin of which would probably be referred to a demonstrative pronominal base. But it is curious, to say no more, that Indian grammarians should have derived their suffix *tâti* from a root *tan*, to stretch, to extend, thus giving to this abstract suffix that very meaning, viz., stretching, succession, thread, series, which modern metaphysicians now wish to substitute for the collective and abstract nouns in *ty*. It is true, no doubt, that the correct derivative from *tan*, to stretch, would be in Sanskrit *tatis*, with a short *a*, which means a row, a series, a mass, or τασις in Greek, which means tension; but the formation of so ancient a word goes back to a period far beyond the reach of the grammatical laws of Sanskrit or Greek, and no serious objection to the etymology proposed by native scholars could be raised on that ground.

Without, however, ascribing to that etymology more authority than it deserves, I thought it might be useful to mention it as likely to be of interest to metaphysicians. If those who follow Mill and share with him his aversion of abstract nouns believe that by using such words as succession, or thread of sensations, they have escaped from the dangerous spell of words in *ty*, they will see that the step from thread, series, succession of sensations to sensibility, or from a collective to an abstract noun, is not so great as they imagine. These words require a peg, and not a painted peg, to hang them on. The expressions, thread, series, succession of sensations hang as much in the air as sensibility. To say that our Mind is the permanent possibility of feeling, and that the Ego is but a series of feelings, are both but new translations, different ways of saying that our mind possesses feeling, or, as we used to say, has the faculty of feeling. Nay, as long as we bear in mind the original purport of collective and abstract nouns in *ty*, it would seem more straightforward and more English to say that the Mind possesses the faculty of feeling than to say that what we formerly used to call Mind or Ego, is "a series of feelings, aware of itself as a series of feelings."

F. MAX MÜLLER.

V.—PHILOSOPHY AND SCIENCE.

III.—AS REGARDS ONTOLOGY.

THE question whether philosophy is more than merely analytical brings us for the first time into serious contact with the claims and pretensions of Ontology. The ontological question may be variously stated. Is it possible to transcend the distinction between the subjective and objective aspects, resolving them into something which is neither of them actually, and yet which is both of them potentially? Or again, Is it possible to exhibit the genesis of the two aspects if not from a common source, yet of either of them from the other? Or again, Can we hope to assign a reason why there should be consciousness and existence at all, or why there should be consciousness and existence only?

These are statements of what is properly and strictly the problem of Ontology. An ontological system is one which professes to furnish and demonstrate an affirmative answer to any one of these questions. But if we look at the various systems of philosophy which are synthetic and constructive as well as analytic, we shall see that they envisage these questions with very varying degrees of distinctness; and that, even where they envisage the questions distinctly, they yet contain much which, though professedly constructive and not analytic, still does not go beyond the ultimate duality of subjective and objective aspects, distinct but inseparable, given by reflection. Let us enumerate the explanations, the ultimate constructive principles, given by some of these systems. Such constructive principles are:

The Very One, *τὸ αὐτοέν*, of Neo-Platonism,
The Triune God, of Christian Theology,*
Leibniz's Primitive Productive Substance,
Spinoza's Infinite Substance consisting of Infinite Attributes,
Schelling's Absolute Identity of Subject and Object,
Hegel's Identification of Contradictories,
Schopenhauer's Will as Thing-in-itself,
Mr. Herbert Spencer's Unknowable.

These are all produced as solutions in constructive philosophical speculations, widely different from each other as they are in other respects, for instance, in respect of how much, in detail, the several systems they belong to profess to have achieved; or again, from a theological point of view. One and all they go to the very limit of the human tether; they embrace *everything*. Even Mr. Spencer's system, which knows that nothing can be known of the dark foundations, is unlimited knowledge in respect of range. It knows so far, and *all* beyond is known to be unknowable. Hegel's system, on the other hand, knows so far, and knows that *all* beyond is knowable too, for its inmost source of being is known.

It is very difficult to pronounce whether the authors of systems such as these suppose themselves to have transcended the duality of subject and object, for they imagine something as transcending it, and by this very act of imagining make subjective that transcendent something. The truth is, that they have not grasped, or at least have not stated, in all its bearings, this property of Reflection, namely, that *all* its objects are subjective as well as objective; either they have not repeated often enough the process of reflecting again on their own proceeding, or else they have not thought it worth while to explain the *rationale* of it to their readers. At the same time they all of them go, as remarked above, to the very end of the matter.

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* Father Kleutgen, *Die Philosophie der Vorzeit.* Vol. 2. § 1018.

We see, then, two things: (1) constructive systems have busied mankind in all ages; (2) the ontological part has not been clearly marked out from the remaining parts of those systems, and thus Ontology has not been distinguished from a possibly legitimate philosophical construction.

The necessity for leaving a place open for philosophical construction, distinguished from Ontology, is shown by the facts of Reflection. Consciousness (I mean always as it exists in an individual) stands as it were at a point in space, an infinite space, which is Existence. But consciousness is as infinite as the space. Otherwise, how could it imagine the space as infinite? But consciousness is endowed with faculties, as it is called, that is, works in certain determinate modes; now everything determinate is limited by its determination,—there may be other modes which are to this consciousness indeterminate, and in that sense unknown. The world as given by our determinate modes of consciousness is to us the actual world in which we live. The world as it would be given by other modes is indeterminate existence, indeterminate to us but determinate to those other modes of consciousness, being their actual world. There is then, beside our determinate world, a world indeterminate to us, but *possible* if there should be other modes of consciousness than ours, that is, *possible* to our thought since we imagine its condition, and *actual* to those other modes, if *they* are actually existing. It is this possible and *to us* indeterminate world which is the field of constructive philosophy as distinguished from analytic philosophy on the one hand and from Ontology on the other. It is a world included within the grasp of Reflection, but excluded from that of Direct Consciousness.

The constructive branch of philosophy, then, having this field assigned to it by the Method of Reflection, is not only one which has been pursued by philosophers, but it is a necessary and legitimate branch of inquiry. The direction in which its problems and their solutions (if any) will lie, and the point of its connection with the analytic branch, are evident. How much it will contain, what answers are possible to its questions, and even the particular shape of these questions, are points which need not here be dwelt on. One thing, however, is too important to be passed over. The constructive branch of philosophy cannot be pursued except in connection with the analytic branch. Otherwise it would not be philosophy at all,—for it would not be subjective and it would not be ultimate. But it does not necessarily follow that its problems must take an ontological shape, that philosophers should propose to transcend the distinction of subjective and objective aspects, and to define the supposed underlying Unity. We have got two analyses, a subjective and an objective, to combine. The elements given by these analyses may be hypothetically constructed and reconstructed in various ways. Again, the modes of consciousness known to us are not all that are possible, there may be conscious beings with senses, emotions and intellectual endowments, widely different from, as well as more numerous and more powerful than, our own. There is a vast field of the unknown to traverse, and all this field lies, with all its possibilities, before the constructive branch of philosophy. Science is of the world as our human modes of consciousness reveal it to us; it is a knowledge of the laws of objective existence as that existence appears to man; it is the history of the universe expressed in general terms, in concepts not in percepts. Still it does not transcend what has or what may have happened, what can happen or will happen, as conceivable by ourselves. But a fourth dimension of metaphysical or unfigured space is a problem of constructive philosophy. It is an object not unknowable, but unknown; we know the *sort* of thing it must be, at the same time as we know that we cannot construe the notion of it to ourselves, or bring it into harmony with our actual space of three dimensions, which seems to include all possible directions of spatial extension.

Or we may state the position of the constructive branch of philosophy as follows. There cannot be anything beyond existence, that is not existence; it is a contradiction in terms; or, there cannot be an existence that has not a subjective aspect, for to *be* is to have a subjective aspect, in some consciousness or other. But there may be existences, or existent worlds, very different from that one which is the world of our consciousness; and we may imagine such worlds, analogous to our own, by supposing changes in regard to the ultimate elements of our own subjective analysis, which may be done either by the hypothesis of different but analogous Feelings, or by that of a different combination of the subjective elements themselves. There would thus be new worlds for new conscious beings. And our own world would appear as one of a series or group of analogous worlds, yet without in any way transcending phenomenal existence, or the duality of subjective and objective aspects, distinct but inseparable. We may farther suppose this series or group graduated so as to consist of members infinitesimally different from each other, yet none of which would be actual to any conscious beings but its own, however near it stood to those most like it in the group. And this whole hypothetical group of phenomenal worlds would be the field of the constructive branch of philosophy.

Again we may say that the problems of the constructive branch of philosophy will include, but possibly by giving them quite different shapes from what they have hitherto appeared under, the old questions of God and Immortality; and generally of the *Why*, the *Whence*, and the *Whither*, as distinguished from the *What* and the *How*, of our actual world. I exclude the question of Freedom, that appearing to me to be not a problem, but a puzzle which is within the competence of the analytic branch; though it is not impossible that further light should be thrown upon it from the constructive. But if we take our actual world as a whole, limited by the worlds of the hypothetical group, then the *How* of our actual world becomes a question of its connection with those worlds, and consequently a question for the constructive branch of philosophy.

Whatever light might be thrown upon the nature of our own world by imaginations directed to the hypothetical group, the insight gained would not be science; no laws of our own world would be thereby discovered or proved; for the hypotheses would not be verifiable. Still there might be an advantage to science in suggestions which might be thus afforded for framing other scientific hypotheses relating to our own world, hypotheses which themselves, when framed, would be capable of verification and therefore scientific. For instance, the hypothesis of an universal Ether is a scientific hypothesis, capable of verification by means of its consequences; but it is also an hypothesis which we may easily imagine to have been suggested, in the first instance, by speculations on hypothetical worlds or their relations to our own. And supposing that to have been the case, we should then have an instance of what I intend by saying that hypotheses in philosophy, not themselves verifiable, may conceivably suggest hypotheses in science which are or may become so. Here is the link which connects the constructive branch of philosophy with science in its strict signification; and it is clear I think that, though indirect, it is still not to be altogether disregarded, even from a scientific point of view.

Widely different, however, from what is here intended as the constructive branch of philosophy are theories which bear a similar relation to some particular branch of science; such theories as for instance that of G. Th. Fechner in his *Zend-avesta* (1851), to the effect that the whole universe is animated, and every sun and planet a being endowed with an individual life and consciousness; or that lately put forward in *The Unseen Universe,* which maintains the existence of an infinite series of worlds composed of finer matter than that out of which the visible universe is framed. One is a physiologist's, the other a physicist's imagination.* Such theories belong to a constructive branch not of philosophy but of science. They build an extension, or they remodel the structure, of the physical world as we see it and know it; but they build or remodel with the old stones, or with new ones of similar quality. Philosophy in remodelling would transmute the very substance of the stones as it were into diamond or opal. I am very far from denying the value of such scientific speculations; I welcome and applaud them. At the same time it is necessary to keep them distinct from analogous imaginations of philosophy in its constructive branch; and, above all, not to use them as supports of a ready-made theology, which is thereby made to sit in the chair of philosophy.

It is at this point that I find myself opposed to those who hold the fourth of the views concerning philosophy enumerated in my first paper (MIND, No. I. p. 68), a view recently and very powerfully advocated by Mr. Lewes. The field which I have vindicated as belonging to a legitimate branch of philosophy, the constructive branch, is, if I mistake not, that described by Mr. Lewes as the region of "the supra-sensible" and "the metempirical," and excluded, in the character of an "unexplored remainder," not only from science but also from philosophy (*Problems of Life and Mind,* Vol. I. pp. 39-46, 177, 189, 194-5). At the last of the places cited, Mr. Lewes mentions two senses of the word Object. "We apply the term Object to the Not-self. This Not-self may be either the objective aspect of the world felt and thought, *i.e.,* of the External in actual and virtual relation to Sentience; or the universe of existence, conceived in its totality, including that smaller section of it which is grouped by a Subject." And then, speaking of the "Universe considered as the totality of Existence," under this aspect he says, "the Object is not the *other side* of the Subject, but the *larger circle* which includes it."

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* See also Fechner's *Einige Ideen zur Schöpfungs- und Entwickelungsgeschichte der Organismen* (1873), in which a certain philosophical character is more pronounced.

On this I would ask,—This interspace between the including and included circles,—what is it? Is it knowable or unknowable? If unknowable, how do we know that it exists? If knowable at all, why not included in philosophy?

There is one way of understanding the expression "larger circle," in which it does not conflict with the expression "other side," here contrasted with it. Namely, when the universe considered as the totality of existence is distinguished into its two aspects, the Object and the Subject, this double-aspected Whole may be taken as the *larger circle* including either of the two aspects, since it includes both Object and Subject; but then this same double-aspected Whole is also, in the present act of reflection, the Object of our imagination; it is the *other side* of our Subject. Reflection continually distinguishes, equates and combines the two aspects. And in this sense the universe, the totality of existence, is the object of philosophy, being the object of Reflection. It is from the point of view of direct consciousness that the universe is *not* the other side of the Subject *but* the larger circle which includes it, since it includes, in Mr. Lewes's words, "that smaller section of it which is grouped by a Subject."

There is then, according to Mr. Lewes, and from the direct consciousness point of view, an objective existence which has no subjective counterpart, is not "grouped by a Subject." This part of existence I understand Mr. Lewes to exclude from philosophy under the names "supra-sensible" and "metempirical." "I am far from implying," says Mr. Lewes, "that a Supra-sensible does not exist. I only affirm that it does not exist *for us* as an object of positive knowledge, though forced upon us as a negative conception" (I. p. 252). He would "divide the field of Speculation into the Sensible World, the Extra-sensible World and the Supra-sensible World: a division corresponding with our previous distribution of positive, speculative and metempirical" (p. 253). And after speaking at length of the two first of these, as comprising all that is accessible to experience, and consequently all that is admissible in science, he proceeds: "There is, however, a third division claimed by Theology and Metempirics, the region of the Supra-sensible, or

Metempirical, which is closed indeed against the Method of Science, but is open to Faith and Intellectual Intuition" (p. 264).

I, on the other hand, from the reflection point of view, would include this region in philosophy, though excluding it from science; not because it is "open to faith and intellectual intuition," but because it is embraced by reflection. Unless it were embraced by reflection, I do not see how it could be examined at all, even to be rejected. To examine it at all is to include it in philosophy; the examination may result in its exclusion from science, but not in its exclusion from philosophy, for that would stultify the examination itself. Within philosophy, accordingly, I would assign this region a place as its constructive branch, making this branch of philosophy wholly dependent upon the results of the analytical branch. To include it in philosophy, at least as a possible branch, is to give a meaning to Wolff's definition of philosophy, "*Scientia possibilium quatenus esse possunt*" (*Logica. Disc. Prœlim.* § 29). To exclude it is to leave unattempted the very questions which most torment us, and for the hope of solving which in great measure philosophy itself is undertaken. Indeed, for most people, philosophy means the constructive branch, means the solution of the questions Why, Whence, Whither, of Existence, and means nothing else. The purely analytical branch of philosophy has for most people no interest and no significance.

The exclusion of what Mr. Lewes calls the supra-sensible and metempirical from philosophy, the rejection of a constructive by the side of the analytical branch, is tantamount to reducing the object-matter of philosophy to the dimensions of the object-matter of science; a reduction of field which is in conflict with the larger method of philosophy, the method of reflection, as compared with that of science. The larger method requires and involves a larger field or object-matter. Mr. Lewes is therefore quite consistent with himself in reducing the method of philosophy to the method of science, as well as reducing the dimensions of its field. "It is towards the transformation of Metaphysics by reduction to the Method of Science that these pages tend."* The solution of metaphysical problems by the methods of science—this is what I take to be the purpose of philosophy, according to Mr. Lewes; and philosophy with him, so far as it differs from science at all, must mean the analysis which effects the reduction of philosophical to scientific problems, by reducing the method of philosophising to the method of science, and thus prepares their final scientific solution.

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* *Problems*, etc., Vol. I. p. 5. And see the whole of the Introduction *passim.*

This is why, in my first paper, I described Mr. Lewes as placing the function distinctive of philosophy from science in the negative task which it performed, of disproving and banishing ontological entities. If this appears an inadequate description, as Mr. Main (MIND, No. II. p. 292) has urged against me that it is, I think it is only from its unavoidable brevity that it appears so. I certainly had no intention of denying that Mr. Lewes's treatment of the ultimate generalisations of the sciences included "re-interpretation and analysis"; I do not see how they could be treated at all without doing so; nor yet that Mr. Lewes aimed at reducing them to "terms of Feeling."

The one difference, I apprehend, which is the source of the rest, between Mr. Lewes and myself, is no small one. It relates to the method or methods of philosophy and science;—has or has not philosophy a peculiar method, based on the principle of Reflection? The answer to this question determines its distinctive characteristic with respect to science, and the range of object-matter proper to each. The facts of Reflection, as I contend, make the method of philosophy what it is, and inevitably render its object-matter larger than the object-matter of science. Of course I do not deny that reflection enters into the special sciences and into psychology; they could hardly have been constituted without it. A glance at my two former papers will show this (MIND, No. I. p. 76; II. p. 227). Reflection is the common thread running through all, and connecting them with philosophy. But philosophy elevates this common thread of reflection into a *method;* and it is its method founded on reflection that at once distinguishes philosophy from the sciences and gives it a larger field. Nor do I see, on the opposite view of the method taken by Mr. Lewes, and on the consequent exclusion from philosophy of the supra-sensible, of that part of existence outside of "the smaller section of it which is grouped by a Subject," how philosophy can logically advance a claim to be a doctrine concerning existence as a whole, or can make, as Mr. Lewes nevertheless does, any statement about "the Absolute" (Vol. II. p. 503).

But the distinction between the two branches of philosophy now indicated and I hope justified, the analytical and the constructive, is practically most important. It is mainly for want of such a distinction that those constructive systems which offered a positive solution have failed to recommend themselves. For they aimed at giving an explanation of the universe which should contain its analysis and genesis *at once,* in a single principle, They attempted too much, and for that very reason they performed too little. Consider it thus. An analysis of the actual world giving us a cause of possible worlds,—how insufficient must any *such* cause be. How narrow a conception, called in to explain how vast a problem!

We must, then, distinguish two legitimate branches of philosophy, the analytic and the constructive. But the analytic branch has already been provided with a name; it is that which I at least have always spoken of by the name of METAPHYSIC. The constructive branch may remain at present undesignated. The kind of problems which will be attempted in it is as yet too undetermined. Indeed it has never hitherto, so far as I know, been distinguished as a legitimate branch of philosophy, as separate from the analytic branch which is Metaphysic, and at the same time cleared and clarified from the pretensions of Ontology, which have been mixed up with it into an undistinguished total. And this is my point of difference from the third of the opinions about philosophy already referred to (MIND, No. I. p. 68), that of the Absolutists. Still less has this new constructive branch been followed with any distinct consciousness of its scope and of the means at its disposal. Nor do I now mean to make any pretensions on its behalf, either as to the soundness of the methods possible to it, or as to the results which may be expected from them. All I say is, that theoretically a legitimate place is open for it in the whole of philosophy; that philosophy has such a branch, clearly distinguishable from Science on the one side and from Metaphysic on the other. And we can see already, in a very general way, what sort of a content it will have. It will consist in the combination of an hypothetical psychology with Metaphysic. It will be hypothetical psychology, psychology carried up into more general regions, because it can only advance by assuming consciousness to be separable from its objects and conditioned by its organism, whatever that organism may be. It cannot, like the analytic branch, *begin* with the objective aspect, but must begin with the subjective, as the only one which is known to it. This it does in making the above-mentioned hypothesis of changes in regard to the ultimate elements of our own subjective analysis. And it ends with the objective aspects corresponding to this new beginning. That is to say, its method is that which we have seen, in the preceding paper, is the method of psychology proper. Its aim is to put the objective aspect, a new hypothetical world, to the hypothetical subjective aspect with which it begins. It is thus closely connected with what is the great problem, as yet totally unsolved,* of scientific psychology, namely, What is the mode of connection between consciousness and its organism; or, in what way is it conditioned by its organism? We know at present nothing more than the mere fact of the dependence.

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* Mr. Lewes takes a wholly different view, which I cannot in this place discuss.

The constructive branch of philosophy is accordingly to be regarded as a philosophised psychology, or the return of Metaphysic upon psychology. The most abstruse problem of psychology is the starting-point of the constructive branch of philosophy. Yet the constructive branch is not a higher branch of philosophy than the analytic. This Ontology professed to be. But it is clear that, however large and sweeping we may suppose the constructive branch to be, as it has now been sketched, still it is and must always be impossible for it to transcend the ultimate distinction of subjective and objective aspects, or to resolve these into a higher unity; for this would be to overpass the very limits, to abolish the very distinction, to the establishment of which it owes its own existence as a branch of philosophy. Above and beyond all other branches of knowledge is that subjective method whose last word is ANALYSIS.

One word in conclusion as to the permanent motives for philosophising. Science has its existence and development assured to it by the various utilities which it procures, as well as by the satisfaction which it affords to the deep-rooted passion for pure knowledge. Philosophy has this latter guarantee in common with science, but the utilities which it procures are not so obviously and inevitably manifest. They are, nevertheless, equally real and equally necessary, that is to say, depend solely on philosophy as much as the others depend solely on science. They belong to the moral more than to the physical world. All the moral sciences, the sciences of Life and Manners, depend upon philosophical analysis in the last resort; the philosophies of Religion, of Morals, of History, of Law, of Æsthetics, seek the definitions, the divisions, and sub-divisions, of their object-matter in the distinctions which general subjective analysis alone supplies. The history of the development of Religion, of Morals, of Civilisation, of Law, of Art, is not enough. Tracing their gradual changes from an earlier to a later mode of existence does not tell us *what* they were at first, nor *what* they are now. At every stage which they traverse or attain, their condition at that stage requires analysis, that we may know what it is that they have been, what it is that they have become. Psychology cannot explain Shakespeare, nor analyse the Fourth Gospel. We want another analysis, not to supersede but to complete the psychological. We want an Organon for the *Literæ Humaniores.* The only Organon which is at once sufficiently subtle for this purpose, and sufficiently comprehensive to embrace science as well as literature, is that which is offered by philosophical analysis,—as yet indeed in its infancy, but it is the infancy of a giant. These are motives which must act with increasing force as intelligence expands and strengthens; and on their permanence depends the permanence of philosophy.

There are yet motives of another kind which concur to the maintenance of philosophy. The problems of the constructive branch of philosophy suppose the solutions of some at least of the problems of the analytic branch. This analytic branch, then, which I call Metaphysic, has the key, *if there be a key,* to the questions which concern that larger imagined whole of which the actual world, as science discovers it, is a part, the sea of possibility out of which the island of actuality rises. If there be a key—yes, *if;* but so long as science cannot say there is *no* key, does any one suppose that mankind will cease to look for one? Religion alone forces us to the attempt; for God, restricted to a finite region, cannot be an object of worship. The moral law compels us; for can that law which *conscience* obeys be a law of less than eternal validity?

The problems of the constructive branch, therefore, have an inherent power compelling our attention; they have also an attracting interest; an interest partly of the same kind as the intellectual interest of pure knowledge, and partly also moral. The possibilities which these problems envisage are possibilities of an emotional kind, as well as an intellectual. They have a fascination for meditative minds, a fascination which perpetually induces such minds to frame hypotheses, and calls forth as perpetually the reaction of analysis and criticism. Nor will an hypothesis which is philosophical admit of other than a philosophical criticism. Philosophy alone can understand philosophy; the criticism must be of the household of the hypothesis. The two branches of philosophy, then, which alone are adequate to interpret and explain each other, the one perpetually inventing, the other perpetually analysing and criticising, hypotheses, rest ultimately on the same motives, and spring from the same reflective root. The only competent criticism of the constructive branch is furnished by the analytical; and, so long as there remains anything unknown to be discovered, not science but philosophy itself, that analytic philosophy which is Metaphysic, will remain the speaker of the last word.

SHADWORTH H. HODGSON.

VI.—HERMANN LOTZE.

Hermann Lotze of Göttingen is by almost universal consent the most popular philosophical teacher that Germany now possesses. Perhaps a few men of science who also dabble in philosophy are inclined to rate Schopenhauer and Hartmann higher, but this preference is commonly found on due questioning to rest upon prejudice. They admire Hartmann because they say he has demonstrated Atheism, or for some such theological reason foreign to the whole matter. Lotze's influence has made itself felt most deeply and has spread most widely—so widely that I doubt if there is any German thinker under forty years of age on whom the Göttingen professor has not set his intellectual stamp. Nor is his influence confined to Germany; it is equally great in Holland; it is manifesting itself in France; Lotze is already well known in England; and here in Scotland all our students who read German are fascinated by his *Mikrokosmos*. And yet he has founded no school, and can scarcely be said to have many disciples; but he has the gift in greater measure than most living writers of setting men a-thinking, and he does not ask those whom he teaches to think to keep within the lines on which his own thoughts run. In this lies his power.

Rudolph Hermann Lotze* was born on the 21st of May, 1817, in Bautzen; he was educated at the University of Leipsic, where he studied in the two faculties of Medicine and Philosophy with such success that in 1839, five years after his entrance, he was able to qualify as *docent* in both faculties. His first work was published while he was a *privat-docent* at Leipsic; it was entitled *Metaphysic*, and appeared in 1841. In the following year, 1842, he at once leapt into fame on the appearance of his *Allgemeine Pathologie und Therapie als Mechanische Naturwissenschaften*. This book led to his appointment as extraordinary professor in Leipsic. In 1843 he published a *Logic*, which has been long out of print. In the following year, 1844, he was transferred to Göttingen, where he was made ordinary professor in the faculty of Philosophy, and where he has since remained. Since his appointment to Göttingen Lotze has given several books to the world. In 1846 he published *Ueber den Begriff der Schönheit*, and two years later *Ueber die Bedingungen der*

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* In his earlier writings Lotze signs himself Rudolph Hermann; in his later ones he drops the first name and signs Hermann.

Kunstschönheit, two tractates on Æsthetic. His *Allgemeine Physiologie des Körperlichen Lebens* appeared in 1851, and in the following year *Die Medicinische Psychologie oder Physiologie der Seele.*

Lotze's greatest work, however, and that by which he is best known and will be longest remembered is the *Mikrokosmos, Ideen zur Naturgeschichte und Geschichte der Menschheit.* The first edition, in three volumes, appeared in 1856-1864, and the second edition, also in three volumes, in 1868-1869. Since then Lotze has evidently been recasting his earlier works on Logic and Metaphysic, and the fruits of this have appeared in a new treatise on Logic published in 1874, which is announced as the first part of a System of Philosophy.

The philosophical position of Professor Lotze is best indicated by the word *Ideal-Realismus* — a term which he himself frequently uses, and which is employed in Germany to denote that school of thought which stands midway between the philosophies of Hegel and Herbart. The late Friedrich Ueberweg, whose *History of Philosophy* was written according to the principles of this school, and whose *Logic* embodied in the main its scientific principles, contributed in 1869 an article to *Fichte's Zeitschrift* which still remains the most concise summary of the principal characteristics of Ideal-Realism. According to Ueberweg Idealism on the one hand and Realism on the other are contradictory extremes, both of which are to be shunned. And lest English readers may be misled by the term Realism it ought to be noticed that the word in modern German use means precisely the opposite of what it did in scholastic times. Modern Realism is as near as may be to the old Nominalism. Ueberweg would call Plato's Dialectic, Schelling's theory of a World-Organism, Hegel's Logic, specimens of Idealism. Kant's Categorical Imperative, and the Christian thought of striving after the Kingdom of God and its righteousness are also idealist. Realism, on the other hand, is represented by the Atomism of Herbart, or the Association theories of Professor Bain. The late Mr. Mill's Utilitarianism would have been called realist. The question which separates these two modes of speculation is one of the oldest in the history of philosophy. Which are the more important, the primary, the creative—thoughts (*ideae*), or things (*res*)? Do things rule thought, or does thought rule things? Have our human thoughts, conceptions, notions or ideas a subjective validity only, or do things *in rerum naturâ* really exist in the very way that we are compelled by thought to think them as existing? According to Ueberweg there are two false ways of answering the question, and these two answers represent respectively Idealism and Realism. The Idealist, with his axiom of the identity of Thought and Being, at once leaps to the conclusion that the laws of Thought have an objective validity, rule everywhere, and really mould Things, which are their less real counterparts. The Realist, on the other hand, fully convinced of the limited character of his knowledge and range of thought, comes to the somewhat hasty conclusion that all human conceptions, notions and ideas are only stereotyped aspects of Things and derive what reality, truth and permanence they have from the things which they so imperfectly represent. Between these two answers Ueberweg finds room for a third—the answer of the Ideal-Realist; and of this third answer, it may be said that it reaches the Idealist goal by the Realist road. It asserts a parallelism between Thought and Being, although not an identity; but this parallelism is discovered by patient questioning of man and nature, it is not assumed as an axiom at the beginning. The Ideal-Realist, in short, claims that he can meet the Realist on his own chosen ground, the investigation of phenomena, and starting from this reach the conclusions of the Idealist. This movement in Germany represents that reaction against sensationalist philosophy and pessimist ethics which itself was a reaction from the Idealism of Hegel. Men felt that Hegel carried things with too high a hand for their peace of mind, and they fell a-grumbling, the grumbling becoming articulate in such systems as those of Herbart and Schopenhauer. By-and-by they thought better of it, and profiting by the experience learnt in the interval they again set out for the promised land of Idealism, resolving to walk to it this time and not to fly.

I do not give this as an accurate account of Hegelianism in its relations to the Ideal-Realism of the present day, but it may serve to represent the attitude which men like Ueberweg and Lotze take up towards that philosophical system.

It must not be forgotten, however, that Lotze, while occupying some such position with regard to Hegel and Herbart as is indicated by the phrase Ideal-Realism, has a place of his own which is too unique to be described in such a general way. He is a student of physics whose genuine poetic and artistic nature has forced him over the boundaries of physical science, whether mental or material, and made him feel that there is a world lying beyond that mechanism which is the *all* of science. His medical training gave him a love for physical science in all its various branches, and he was especially attracted by physiology and chemistry. The study of physical science, it has often been remarked, does not incline men to Hegelianism; it rather makes them contemptuous of Hegel's sweeping generalisations. They learn that it is impossible to map out the world beforehand, that all such attempts are not merely useless but demoralising in science, and they fancy rightly or wrongly that such an Idealism as Hegel's is full of attempts of this kind. Lotze undoubtedly acquired his reverence for patient investigation and his conception of the grandeur of natural law, together with his distaste for Hegelianism from his scientific training and work. Historical studies, too, kept him from accepting Hegelianism, and cultivated in him that wise scepticism in which Bacon delighted. They made him shun all hasty generalisations which are the bane of the philosophy of history and cherish a wholesome dread of trusting too much in the Hegelian categories and making them serve, as so many of Hegel's followers are inclined to use them, for a ready-made table of contents to the history of the world or that portion of it whose genesis they are tracing.

At the same time there is another side in Lotze's character which tempers his enthusiasm for natural law and physical science. He has a poet's feelings and longings after the ideal, which force him beyond the sphere of physical science. His poetic and artistic insight prevents him from accepting the results of science as the whole of what is to be said about God, the universe and the soul of man, for it gives him a vision of ideals everywhere partly seen in, but partly hidden by, the things of sense and time with which science has to do. For Lotze, as for every poetic nature, those ideals which are clothed upon by what we see, taste, touch and handle, are the true realities. There is a more perfect straight line than any we can draw, there is a more perfect curve than our most faultless instruments can sketch, there is a beauty surpassing anything that has been seen. He has a poet's hopeful sympathy with the imperfections of the sensible universe. This poetic and artistic nature of his makes him recoil from the domineering pretensions of physical science, more especially when it attempts to penetrate the province of mind, and it gives him a real insight into what lies beyond the mere mechanism of the universe. Many philosophers are poetic enough, if to be poetic means to make quotations and express in neat couplets their own narrower ideas; but Lotze does not make quotations. He possesses a poetic mind because the world of poetry and art is a real world to him in which he lives and moves and has his being. Poetry and art are not for him, the regions of abstractions—the realms of quaint aspects of everyday facts. They are full of realities, and they have to be taken into account whether the philosopher likes it or not. So he separates between what he calls the mechanical and the ideal in nature, and his constant endeavour is to state and restate with unwearied energy that the mechanical part of nature is not the whole of it, that above and below and beyond and all through the mechanism there is the ideal, the poetic, the artistic, the ethical. He is ever telling his readers that all above and beneath and around the bit of nature which we can weigh and measure, which we can dissect and fit into our formulas, there is a region which is for us the realm of wonder. In ourselves, besides those series of sensations and trains of associated and blended ideas which come and go according to laws which can be measured and explained, there are flashes of inspiration which we can never bind nor limit, there is the ideal in its varying forms which will not submit itself to empirical psychological laws, there are depths and inner recesses of our being, the mysterious springs of hope and fear and faith, which can be fathomed by no sense plummet line however lengthened out by an association principle. In the universe about us, if we are to think it intelligibly, there is more than the complex mechanism of physical law. There is in it what renders art and poetry and science, as opposed to sciences, possible—and we must take that into account. In short, Lotze's poetic and artistic nature makes him recoil from a merely empirical philosophy, just as strongly as his evident fondness for scientific investigation repels him from Hegelianism.

But with all Lotze's keen insight into the presence and power of the ideal, there is in him a strong tendency to individualism which forbids him to speak of his system of philosophy as his idealist predecessors would have done. In the preface to his latest book—the first part of his System of Philosophy—he says: "When I venture to call this book the first part of a System of Philosophy, I hope it will not be supposed that I am putting forward those pretensions which have formerly been associated with the name. My intention can be no other than to state my own personal convictions in such a systematic form as shall enable the reader to judge how far they not only agree in themselves, but also how far they serve to bring together, within the compass of a cosmological conception which can be defined, the various departments of exact knowledge, from across the great chasms which have kept them apart." The same view is repeated, at least by implication, in many other places. Lotze seems to say that *the* system of philosophy is not to be expected from any single philosopher. It is not Kant's nor Hegel's; it is not Herbart's nor Mill's. Each has his own system, and all of them have *the* system among them. His idea is that philosophers have not got to make the world, but to understand it; and to understand it each must work away from his own point of view, each must make his own system, each must put forth in systematic form his own personal convictions about the whole matter, and then leave it with the assurance that he has done the portion of work allotted to him, and that the *Welt-Geist*, or, to put it more prosaically, that history, is rolling after him and will not allow anything true and valuable to perish. Some critics infer from this intense individualism of Lotze that his philosophical opinions are not so far removed from those of Herbart as a more superficial view would lead us to suppose, but this notion presents insuperable difficulties. Erdmann and Zeller have given another explanation which, though not entirely reconcilable with what seems to me to be the truth, comes much nearer to it. They suggest that Lotze has gone back to Leibniz and revived his Monadology in all its essentials, and has simply ignored what has come and gone in the interval. Such statements, however, seem to me to be too sweeping. Men do not reproduce old theories without variation; for one thing, they are always children of their age and are more or less in sympathy with the movements of their time. It is quite possible to be a disciple of Hume even although Kant has come in between us and the great sceptic, for a negative philosophy is much the same at all times, but the case is quite different with a constructive system. And apart from this, Lotze's monads, if the phrase may be used, have not that intense individualism which characterised the monads of Leibniz. Lotze is too much a poet for that; he has too great a share of the spirit of Lessing. His monads are by no means drawn with such distinctive outlines as to allow us to call his system a Monadology. There is a poetic haze about them, under cover of which they lose their sharp individuality. There is always history behind the individuals, and history has a potency to universalise. I think that Lotze would agree with Ueberweg when he said that it was the business of the race, and not of even the most gifted members of it, to construct and advance science, and if so, there is behind the individualism a universalist view, crass it may be but real, and acting with great influence upon the whole round of philosophical conceptions. Lotze himself, when trying to show that the fact that the body is composed of a variety of monads does not make impossible the substantial individuality of the man, soul and body, illustrates his theory by the relation between the *Zeitgeist* and individual men and women. There is a *Zeitgeist,* he says, which is not any one man, and yet exists in the consciousness of different individuals, weak in the stupid and unsympathetic, and strong in those of opposite character and capacity, and thus the individuality of each shades off into the *Zeitgeist,* which is the Universal behind them all.

I have dwelt at this length upon these two characteristics of Lotze's—dread of materialism or the triumph of the mechanical view of the Universe, and mistrust of the idealist solution—because unless they are thoroughly kept in mind his philosophy is very apt to be misunderstood. According to Lotze these two views have been opposed to each other hitherto, and this opposition has had the saddest consequences. Science ought not to be viewed with disdain or it will avenge itself, and philosophy ought not to be looked on with contempt or it in turn will do harm to science. The old opposition between the sense-world and the supersensible ought to cease, Lotze thinks, and the great problem of his *Mikrokosmos,* as he states it in the preface, is to show "that the strife between the two is an unnecessary misery which we bring upon ourselves by stopping short in our researches." Science need not fear the Ideal, and the Ideal has nothing to fear from science. Science has not modified, still less destroyed one of the ideals belonging to the supersensible world. The growth of science, rapid as its advance has been, has not made the universe seem less poetic, nor has it driven poetry and faith from the world. She robs us perhaps of not a few cherished ideas, but in the end she restores more than she takes away. Lotze seems to say to the materialist and to the empirical philosopher that he will grant every affirmative statement they like to make, he will accept their account of how the human animal becomes conscious, he will listen without contradiction while they propound their theory of an intelligible universe, but while he does so he will prove that only half of what ought to be said has been said. As he himself puts it: the more willing we are to make admissions to science the more necessary is it to hold up the other side of things; the two sides must be reconciled not by each yielding a little alternately, but in a much more thoroughgoing way, and this reconciliation will take place when it is proved "how exceptionally universal is the extent, but how completely subordinate is the mission which mechanism has to fulfil in the universe." This is the burden of the preface to the *Mikrokosmos,* and also of the opening chapters, but a bald statement of the problem or even a succinct summary of the reasoning can give no idea of the beautiful poetic thought, and of the strange musing style of the book. Whoever reads these chapters finds himself beginning rather a magnificent poem than a dry philosophical treatise, and is tempted to think that the poetic or artistic impulse rather than the strictly philosophical sways the mind of the writer. When Lotze rejects the mechanical explanation of the universe and the soul of man, it is quite as much in the spirit of Tennyson's

> Let science prove we are, and then
> What matters science unto men?
> At least to me? I would not stay—

as in the mood of sober philosophy. One is inclined to say that Lotze is as much moved by noble antipathies as by any reasonings, and perhaps Lotze himself would agree in this, only with the proviso that much reason may lie in poetic likes and dislikes. In the chapter on Truth and Knowledge he says: "for all of us there comes a time of life in which a universal insufficiency begins to overshadow the reality we have hitherto simply taken in and enjoyed, and yet a hidden light seems to shine through these shadows," and then he goes on to show that when we are impressed with the reality of the beautiful, the good and the holy, when we come to think that these are the only realities and that everything else are appearances only, we become angry with the dull facts of life and in a kind of poetic despair we cling to the mythological idea that "das Werthvolle allein das wahrhaft Seiende sei." We be-soul things, he says, with our own ideas of what ought to be, we idealise dull facts, and cast a glamour of enthusiasm about the commonplace which surrounds us. Lotze does not condemn this idealisation of dull life. On the contrary he defends it. There is both strength and weakness in the tendency, he says. There is weakness because it does not do to fly in the face of science and scientific facts, and we must learn with all patience not to contradict passionately the course of nature, but to follow it aright with patient hopeful calmness. But there is strength in the tendency because there *is* a truth in it which is somehow lost in our more sober observation of nature. This enthusiastic intuition guesses at many a truth, and sees many a secret communion of things which sober plodding science going on in its dull way misses. There is many a secret of nature which is hidden from the wise and prudent and is revealed to babes. The time will come, says Lotze, when the dream, "das Werthvolle allein das wahrhaft Seiende ist," will prove true, and we shall see nature to be what we long ago dreamt that it was. In Lotze we see the spirit of German Philosophy sadly afraid that its old

Idealism was but a dream of youth, yet too full of the old memories to turn to the pessimism and despair of Schopenhauer and the empiricism of Herbart, and so animated with the thought that it will yet patiently plod its way towards that land it had once thought to reach by youthful soaring. All throughout the *Mikrokosmos* we are carried from the real to the ideal, all throughout it sounds the refrain of Shelley's—

> Oh happy Earth, reality of Heaven!
> Genius has seen thee in her passionate dreams.

It seems somewhat commonplace to attempt to reduce a philosophy like that of Lotze, which consists so much in poetic and artistic aspirations engrafted on scientific study, to a series of bare philosophical principles, and the attempt can never be wholly successful. For the great suggestiveness of Lotze's writings, and their value in our present scientific age with its insatiable craving for exactness, consists very much in the appreciation he has of what cannot be defined and in his consciousness of its presence. His readers are always made to feel that there is more in nature than we can describe, that there is an Infinite all around us which cannot be expressed in philosophical formulas, though it is part of that universe with which philosophy has to do. But the attempt will do no harm if we keep in mind the caution just given.

From what has been said already it is evident that Lotze's warp and woof are his two principles of *mechanism* and *idealism* —the mechanism and the idealism in nature and man. From these he weaves the web of his philosophical system, with these he constructs his cosmological conception and provides explanations for all the complicated problems which philosophy suggests./

By Mechanism or mechanical side of things Lotze means all that belongs to science, all that can be expressed in natural laws, everything which belongs to the regulative framework of the universe. The mechanical view of the universe is that which regards it as the blind outcome of law, the product of mere evolution, the result of a blind impulse which is not animated by volition of any kind and is enlightened by no ray of sublime intelligence. It is that which regards nature as a whole of moving things or forces acting and reacting on each other, and which insists negatively that there is no creative freedom going on in the universe now. According to Lotze the number and elaboration of machines, which is a sign of our times, incline us to look on the whole universe as a machine, and this inclination is helped by the increase of man's power over nature, by his acquired capacity to make things in the same style as nature and even to improve on its workmanship. We can make new plants, new breeds of cattle, new crystals. This mechanical view of nature which was once supposed to apply exclusively to inanimate nature has now shown its power to rule over animate nature also. Plants and animals are by some regarded as machines, they are fed, they work and wear out as machines do. Even men are held to be machines. Our bodies are portions of nature, our minds work according to regular laws. Our moral nature seemed a last refuge against the all-absorbing reign of law, but we find that there is the same average of crime every year; a certain number of murders and so many thefts have got to be done it would seem and are done accordingly. Enclosed in the greater automaton of nature is the smaller one, the soul of man. This is the mechanical view of nature and of man. To it belong all theories which describe the universe as the production of natural law working uninspired by a supreme intelligence, and all theories of man which make him and his intelligence and morality the result and exhibition of natural laws, whether of association or any other. This mechanism Lotze accepts, but declares that it is only one side, and that the subordinate side in nature and in man.

The other is Idealism or the ideal side of the universe. This side is, according to Lotze, as real and as universal as the other; and it is more important, for the other is subordinate to it. The idealist view of the universe has undergone many transformations, but no essential alteration. There is an ideal meaning in nature, according to Lotze, which can never be discovered by mechanical explanations. This ideal meaning was expressed in the youth of the world by what we now call mythology, when men thought that all nature was alive. In earlier philosophy it appeared in theories of final causes and adaptability of means to ends in creation. Now it exists in poetry and art, and whatever be the advances made in science it is not likely to die. The roots of the Ideal are to be found in those universal laws which exist within us, and which altogether apart from a gradual experience we find ourselves compelled to accept, such laws as those of mathematics for example. They are also to be found in the faith which we all have in the ideas of the good, the beautiful and the holy. They are to be found in the intimations which come to us of an Infinite and an Eternal. All these things are as really in man as memories and perceptions, and they must be taken into consideration by the true philosopher. Thus there is set over against each other, but not in irreconcilable opposition, two sides of nature and man, and these two sides when reconciled give us a system of philosophy.

The question here arises how this reconciliation is to be made, and what is the leading thought which will give such an explanation of the natural relations as will bring about the reconciliation. Here Lotze rejects with emphasis both the Hegelian and the Herbartian theories. The thought of Causality which is Herbart's key to the mystery will not do, Lotze thinks, for causality does not preserve the ideal, or at least it does not preserve the distinction and yet keep the connection between the ideal and the mechanical which the solution of the problem demands. Nor does Hegel's Idealism please him better. To say, as Hegel according to Lotze does, that natural objects exist in order to take their places in a classification, and to give an embodiment in phenomena to the logical gradations of Universal, Particular and Singular; to say that the life and motion and mutual action and reaction among natural objects go on in order to celebrate the mysteries of Difference and Opposition, of Polarity and Unity; to say that the whole course of nature was appointed in order to carry on a rhythmic motion in whose pulsations Affirmation, Negation and Reciprocal Limitation perpetually relieve each other—is no explanation, Lotze thinks, nor does it show even a due appreciation of the problem to be solved. What is to be done is to reconcile the mechanical and the ideal, both of which are actually present in nature side by side with each other. So far from bringing about a reconciliation, Hegel, according to Lotze, has destroyed the mechanical at least, if he has not destroyed the ideal also. For Lotze thinks that Hegel comes to look even upon the world of spirit, upon the Ideal according to Lotze's use of the word, upon thought and the whole spirit life, as merely the highest form of phenomena which arise to manifestation by means of the unfathomable power of Yes—No—Both.

Having rejected the ideas both of Hegel and Herbart, Lotze thinks that the leading thought of *purpose* is the idea which will effect the reconciliation he has at heart. This idea is not one-sided, and the reconciliation it effects is not therefore a destruction of one side or both. It implies reciprocity, and the reciprocity of dissimilars. The ideal is the purpose for which the mechanical exists, and this thought of purpose gives the solution of the problem. The two sides are required the one for the other, and thus Lotze's main idea is teleological. We explain the mechanism of the universe when we can show its worth, its power to reveal the ideal. The inner world of the good, the beautiful and the holy is the key to this outer world of forms. The one is to be explained by the other.

Lotze thus views the universe as a world of spiritual natures which are environed and kept in their places and taught to do the work given them by a mechanism of natural law. This mechanism is not simply an external restraint imposed on a realm of free intelligences, it springs from the nature and circumstances of the spiritual beings it in a measure controls. It is this external mechanism we see and explain and experiment upon in natural or physical science, but so long as we keep to it we do not get beyond the surface of nature nor do we even understand the surface itself. All this outward mechanism, which is the whole of science, has itself to be explained by something beyond itself, by the purpose which is in it. For things exist for a purpose, and this purpose is the sole reason why they exist at all. Other explanations may be given, but such explanations require further explanations to explain them, and so on, until we come to the last and final explanation, which is that they exist for the purpose of realising an idea. Every thing, every fact, has its own peculiar and necessary place in the whole world of things because it manifests or brings to actual birth and being an idea. The ideal is the purpose in the real, and the mechanism of the universe is what brings the ideal to light. The mechanism in nature is what sustains and displays the idea in process of evolution.

By combining in this way the Ideal and the Mechanical Lotze arrives at a cosmological conception which is neither the one nor the other, but which he thinks can embrace both. It is both ideal and real, it is founded on the abiding presence and value of the ideal, but it provides for the presence of the mechanical as well. Critics have called it teleological-æsthetic. The teleology culminates in the idea of God, and it is called æsthetic very much because it is so animated by the poetic and artistic ideas which have such a strong hold over Lotze. His fundamental stand-point is therefore a teleological Idealism which recognises that the idea of the Good is the sufficient reason for all that exists and happens, and his metaphysic has its roots in Ethics. It ought to be observed, however, that Lotze does not confine the Good to the realm of action. Beauty is good, so is holiness. Good is used more in its artistic poetic sense than in its strictly practical meaning. The universe, the actual universe, is therefore made up of the Good and all good things, or, as this comes to be explained, it comprehends the personal spirit of God and the world of personal spirits whom he has created. It is for them that the phenomenal world exists, and that the mechanism of nature has been set in motion. They furnish its explanation and sufficient reason. This is the central position from which Lotze views everything, it is the standpoint from which he works, and this must be understood by all who wish to know his philosophy.

It is impossible, within the limits of this paper, to show how Lotze from this starting-point works out all the most interesting problems suggested in philosophy, psychology, æsthetics and metaphysics: I can only show how he applies his principles to settle a few such questions as the relation between Knowledge and Existence, Space and Time, the relation of the Soul to the Body, and the principle of Association.

But before giving one or two such illustrations of his method and its results it will probably make the whole subject more intelligible if his general idea of phenomena is first brought into view. According to Lotze a phenomenon always stands in a two-fold relation. It requires a substrate or substance *of* which it is the phenomenon, and it requires something *to* which it is a phenomenon—to which it reveals that substrate whose phenomenon it is. The essential import of a phenomenon, therefore, is that it is a mean in relation to two extremes, that *of* which it is a phenomenon and that *to* which it is a phenomenon. This is the purpose of a phenomenon, the sufficient reason of its existence. Phenomena are not therefore merely subjective, they are objective manifestations; they do not depend for their existence on being perceived, for they have an existence from their substrate apart from that; but at the same time they are there to be perceived and are purposeless unless they are perceived. Lotze also sees that there are what may be called forms of phenomena; phenomena may be divided into classes; and these various classes or forms of phenomena correspond to what he calls the ontological forms, and reveal them or make them manifest. Thus the phenomena of the sensible world are means whereby the teleological process, which binds together the universe of things, and which works in accordance with the ontological forms, is revealed to the mind of man, and there is a parallelism between the cosmological or phenomenal forms and the ontological forms. This parallelism is of course one peculiar phase of the general parallelism between the real and the ideal, between things and thought. Other parallelisms also emerge. There is a parallelism between thought and speech, for example, as well as between things and thought—Metaphysics, Logic and Grammar are all parallel streams.

We may now refer to Lotze's view of the relations between Existence and Knowledge. It is common in philosophy to speak of the difference which there is between what really exists and happens and our knowledge of these things and events, and to assume that the world of real existence is not the same as the world of knowledge. It is thought that just because things are known to man they must be humanised, so to speak, in the very act of knowledge and changed into something more or less different from what they really are. Man knows things, it is said, not as they are in themselves but as they are known to him, and so a universal human error, in addition to any number of particular and special errors, creeps into human knowledge; we see things through our human spectacles which may be blue or green or out of focus for aught we know, and so we do not see correctly. Now Lotze denies all this. His axiom of the thorough-going parallelism between thought and things prepares us for this denial; still his mode of getting over the difficulty has always seemed to me one of the most obscure parts of his philosophy, and one which I cannot altogether satisfactorily expound. His general idea seems to be that when we speak about the universe of things we ought to remember that it is made to be known, and that being known is one part of its existence is a phase of its character which should be taken into account. The world of outer objects is only a part of the external world: for these objects are only complete when they are being known. So far then from saying that things are robbed of part of their reality in the act of knowledge, we ought to say that in this act they fully become what they are. They are made to be known, and their purpose is unfulfilled unless they are being known.

Lotze has worked out this somewhat obscure subject in what he says of Space and Time. He treats of Space and Time in two different places—first, psychologically, and then metaphysically.* The first passage does not immediately concern our subject, but since it will help us to understand the second, it may be as well to refer to it. Lotze is discussing Innate Ideas. Long ago, says he, the phrase meant that we had an innate knowledge of certain facts, such as the immortality of the soul. Philosophy has shown the folly of this, and innate ideas are now looked on as rules by which we take hold of and mentally manipulate what is given us in perception when we bring it under the forms of Space, Time, Number and so on. We are not to suppose that we have in our minds ready-made ideas of Space, Time, &c., before we get any perceptions from external experience; on the contrary, long before we know definitely what space and time really are we have been taking into our minds ideas from without. What is meant is that the nature of the mind is such that this is the way in which the mind works upon what is given it. Some people try to account for all this by showing how it arises out of the mechanism of ideas; they try to show how Time and Space are created out of association of ideas, but Lotze thinks that all such endeavours are misspent labour. Our ideas, he thinks, would never arrange themselves into unities unless the mind itself arranged them. The mind seizes on the vague blurs of sense and works them into definite wholes—into the image of a world in whose inner connection it sees the reflection of its own unity. So far Lotze follows Kant. But while Space and Time are in the mind and therefore modify all things which are known by the mind, yet they belong none the less to external things which find their true reality in accommodating themselves to these forms of intuition. Passing now from the psychological to the metaphysical aspect of the matter if space belongs to things it does not belong to their essence nor to any part of their essence, but to what may be called their relations to each other, their juxtaposition. Lotze adopts Kant's doctrine of space, and thinks that it is merely a form of our subjective intuition, but he objects to Kant's proof of his doctrine and also to the way in which he uses the theory to construct his cosmological conception. I pass over his criticism of Kant's theory and proceed to his consideration of the ideality or reality of Space. His answer is that space has both ideality and reality. Space is just the possibility of the juxta-position of many things. This does not say *what* it is, but it points out the way. All that we know about space to start with is the certainty that every point is separated from every other by one and only one straight line. This is true of every two points, of every pair with every other pair, and from this we can advance to a *whole*, hanging together by the same law. And thus space comes to be a sort of *integral*, which states the whole which arises from the summing-up of the infinite applications of the law of juxta-position, when we abstract real things and put moving points in their place. If this be space then it is not a reality which exists in the form of emptiness outside us, it is an ideality so far. But it is also a reality because it expresses relations which really exist, and to think things in space, as we are compelled to do, does not alter them so as to take away from their reality. In the same way the other forms of Intuition, &c., do not abstract from the reality of things. Lotze's discussion of Space and Time from the psychological point of view, is a very fair specimen of his treatment of such questions.

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* *Mikrokosmos,* Vol. I., c. vi., Vol. III., c. x.

Another example of his mode of investigating mental phenomena is presented in his discussion upon the existence of the human soul—his psychological proof for Immaterialism. The argument is given at greatest length in the *Medicinische Psychologie,* Bk. I., but is precisely the same, though somewhat more condensed, in the *Mikrokosmos,* Bk. II., c. i. He begins by picturing the flow of the universe in ever-changing phenomena about us, and then compares with this the flow of thoughts, feelings and desires within us. The mechanical view of nature suggests that there is no real unity in our inward life. Man's soul appears to be only a spray rainbow floating above the eddying tide of things, yet in spite of the suggestions of the mechanism of the universe the common belief of humanity has always maintained the unity of man's inward life, and has always refused to believe that we are only conglomerates of sensations swept into us through our acquisitive faculties whenever external things happen to rub up against us, and kept together because somehow or other they stick there and form a cluster. However, this is but a universal presumption and ought to be proved. Lotze then discusses the three common proofs for the existence of the soul. These three proofs are—internal spontaneity, the gap between physical and psychological sensations, and the unity of consciousness. He admits that the first proof is somewhat weak. We all feel of course as if we had this internal spontaneity, but then we feel many things and know that we cannot trust our feelings. What seems to be spontaneous is often the effect of impulses from without. Of course psychologists, when hard pressed here, take refuge in the moral argument for the existence of Freedom. But to many people this moral argument has very little weight, and this shows at least that it is not indisputable; and there is no doubt but that our inner life shows unmistakable traces of being to a great extent subject to the reign of law. On the other hand no arguments have yet been adduced which suffice to show that the life of the soul is derived from the life of the body. So, arguments apart, we have the old presumption to fall back upon. In discussing the second argument, the gap between the physical and the psychological side of sensations, Lotze lays great stress on the fact that no investigation has told, nor can tell, where motion in the nerves turns into sight, hearing, touching and tasting; the one cannot be compared with the other, the one can never be the equivalent of the other. But Lotze evidently thinks that *the* great argument for the existence of the soul is that derived from the unity of consciousness. The unity of consciousness enables us to make the whole of our bodily conditions a single object of self-consciousness. This argument does not require that we should be always conscious of this unity. It is enough for the purpose if we have the power, though we may not always use it. We may sometimes lose ourselves in the feeling of the moment, but we should not know that we did, if we were not, as a general thing, conscious of being ourselves. It is important to notice the precise point of the argument. We have not this unity of consciousness because we *appear* to ourselves to have it, for many things are not what they appear to us. But we have it because we appear to *ourselves* to have it. —To ourselves, that is the point, for as was before explained, Lotze thinks that there are always two factors to a phenomenon, there is what *appears* and that *to which* it appears, and it is in this second factor, which is always the same, that we find the unity of consciousness. And so Lotze brings us back to the old fashioned idea of a separation between the soul which is unseen and the body which is perceived by the senses. But he ends in his cautious way with the reflection that there may be after all a higher unity; for our minds are always aspiring to bring everything to a unity. "And so," he says, "this opposition between soul and body may not be a final and irreconcilable one, but our present life is passed in a world in which its riddle is not solved, but lies unsolved at the foundation of all our thought and action."

Lotze's discussion of the relations between Soul and Body is also very instructive, and is worthy of notice not only because he develops there his theory of Occasionalism, but because it is full of wise warnings against the tendency in philosophical research to be carried away by words, and to suppose that when a given thing has been named it has been explained. It is best, he says, in all researches of this kind to find out first what the facts are, and to persevere in this search even though the facts may not at once suit your ideal principles. If the study is entered upon in this spirit it is wonderful to see how much theorists have been misled by words and how much they have gone on the principle of treating as real their own abstract notions. One of the first questions that comes up is the *band* between Body and Soul, and the various explanations of what this band is. But a preliminary question is whether there is any band at all. No band is required to give the Body and Soul opportunities for reciprocal action. Of course before two substances which act on each other chemically can mutually affect each other, they must be put into the same vessel, but once together it is not the vessel that enables them to act upon each other. A band between Body and Soul might be talked about if the questions discussed were how the Body and Soul were first brought together, but to talk of explaining the action between Body and Soul by saying that there is a band between them is just to explain a thing by itself. Every reciprocal action that takes place between Body and Soul is a thread out of which the band is woven. Then again Lotze warns us that we can never find out the secret of the relations between Soul and Body by physiological researches. When we look into a machine and see all its wheels and spokes we are no nearer an understanding of *how* it works, we have only exchanged the big secret of the whole machine for the little secrets of its various parts. Upon the whole then, all that we can do is to note the occasions when the Soul influences the Body, and the Body the Soul. It is impossible, either in psychology or in physical science, to get to the bottom of things, we can only watch on the surface the occasions when things take place. This he calls *Occasionalism.*

One of the most suggestive chapters in the *Mikrokosmos* is the one which discusses the principle of the Association of Ideas. Lotze comes to his subject by his usual contemplative roundabout road, taking up, looking at and letting go a whole variety of theories, each of which has something good about it but is vitiated by some fatal flaw. This peculiar mode of dealing with psychological subjects, Lotze has in common with the late Professor Grote of Cambridge, whose *Exploratio Philosophica* is often recalled by some portions of the *Mikrokosmos.* When we begin to study the mind (*Seele*), says Lotze, we find in it the steady use of powers already formed, but it is as difficult to find out about their formation as it is to work out the geological problems about the formation of the earth. The difficulty of this psychological problem is that we cannot, as in physical science, make the different forces work separately, and experiment upon them. We must watch the way in which the forces work now and work together. One of the most interesting and important of those powers is memory. We see in it a certain mechanism, but we cannot define its rules sharply. We see its laws as we see facts, but we do not see that this *must* be the way in which from the nature of the mind it will act; and this difficulty is not so much noticed as it might be, as we are in the habit of wrongly taking over certain physical truths into psychology without thinking much about what we are doing. A great many theories of memory proceed, for example, on the idea that *inertia* is a property of the mind. Why should a conception come back to the mind when it is once gone, or why should a conception once in the mind ever go away? But take the physical idea of inertia away, and we might say—Why not? Again we are always making *pictures* of our consciousness which are at the bottom of half our difficulties. We picture it as a *space* in which things are and into which only so many things can get, or as a *light* which grows dimmer in proportion to the dispersion of its rays, brighter in proportion to their concentration. All theories of memory which depend upon mistaken physical analogies such as these, are and must be useless. Lotze mentions some such theories just to show on what a number of pure assumptions they rest. What is meant by the *strength* of impressions for example? Whatever it may be at first, this difference disappears in recollection. The remembrance of a thunderclap is not different in this respect from the remembrance of a whisper. What is meant by saying that our conceptions get dimmer and dimmer? We cannot see them becoming dimmer, for if we did see them they would not get dimmer. What our conceptions really do is to vanish and reappear with increasing pauses. And so on. He then sums up a whole series of delicate psychological questions by showing that what we ought to do is to observe the phenomena themselves and familiarise ourselves with the ways in which they act. These ways are the laws of Association. The foundation of Association seems to be that the mind does not mix all the elements present at one moment, or the things that succeed each other, in a sort of chemical fusion, but connects them mechanically together. He reduces the laws of Association to those of Redintegration (as Sir W. Hamilton called it) and Similarity; and he thinks that simple conceptions are associated together usually by redintegration, because they have been component parts in a whole experience, while in compound conceptions the way in which the various parts are put together has more influence on our memory than the individual parts themselves. At the same time he says that, however glibly we may talk about Association, there is a great deal in it that we know nothing about, and, although we may speak of definite laws of Association, there are so many things on which the associating impulse depends that there must be a certain amount of incorrectness about our statements. Association brings up an immense number of things from which the mind can make its choice, but its choice will not depend entirely on the ideas themselves or on their associations; as much will depend upon which of these ideas happens to suit the particular state in which the mind is. And this depends on a great number of things, on events past and present, on the physical condition of the body—on a whole host of things which make an ever changing background for the succession of ideas. We can never know all about this background and yet the course of our ideas may be modified by the smallest portion of it. What modern psychologists call "Inseparable Association" is not discussed by Lotze, but I am inclined to believe that he would look upon the phrase as a contradiction in terms, a theory which would scarcely have suggested itself unless for the purpose of supporting a foregone conclusion.

Space forbids my giving any other illustrations of Lotze's method in dealing with individual problems. English readers who are unacquainted with his *Mikrokosmos* should read the 9th Book, and its charming fresh thoughtfulness will, in all probability, induce them to make a study of the whole work. The great value of Lotze's utterances in philosophy is that he is ever conscious of the infinite overshadowing us, and is always judiciously sceptical of the exact definitions of which this age of physical science is so proud. "Philosophy thought," he says, "that it was bestowing on Him who is more than all that can be called *Idea* an honourable elucidation, when it raised Him out of the dimness of being clung to by the whole heart and soul to the dignity of a notion objectified in pure thought." This bit of quiet sarcasm is as applicable to other sides of philosophy as to the way in which it has dealt with our thought of God.

T. M. LINDSAY.

VII.—PHILOSOPHY AT DUBLIN.

TRINITY COLLEGE Dublin (which now constitutes the University)* was founded by Queen Elizabeth in 1591. It was originally intended chiefly as a school of theology for the Church of Ireland, and so lately as my own time the majority of the students consisted of persons intended for the ministry. Hence naturally a good deal of attention was devoted to Philosophy from the first, but being treated in connection with theology rather than from the psychological side, no great progress appears to have been made until the end of the 17th century. The course of general instruction was strictly defined in the statutes drawn up for the College by Archbishop

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* Originally it was intended to be *Mater Universitatis;* but when it developed into an University it is not easy to say. The expression is often interpreted as if Queen Elizabeth founded an University which was designed to be the Mother of Colleges, thus actually inverting the words.

Laud in 1637. For the first year the students were to be lectured and examined in Dialectics, with special reference to the *Isagoge* of Porphyry; in the second year the *Organon* of Aristotle was to be expounded; in the third his *Physics*, and in the fourth his *Metaphysics* and *Nicomachean Ethics*.* I do not know under what Provost this state of things began to amend, but I suspect that an improvement was effected by Dr. Narcissus Marsh (of Oxford, afterwards Primate of Ireland), who held that office from 1678 to 1683. It is certain that on the publication of Locke's *Essay* it was eagerly studied in Dublin, and I am disposed to think it was very soon introduced into the College course. This was no doubt in part owing to the influence of the well known William Molyneux, a graduate of Dublin, who represented the University in the Irish Parliament from 1692 to his death. Molyneux was apprehensive that there would be a difficulty in introducing the book into the College curriculum because it was not sufficiently scholastic in its form, but as it appears from his subsequent letters that Dr. St. George Ashe, who became Provost in 1692, was an ardent admirer of the *Essay*, and was desirous of making the acquaintance of its author, it is probable that this difficulty was surmounted. Dr. Peter Browne, who succeeded to the same office in 1699 was likewise a metaphysician (though hardly a disciple of Locke), and no doubt Philosophy at Dublin made further progress during his provostship. Browne, who like most of the early provosts, afterwards became a bishop, wrote a criticism on Locke's *Essay*, and also an answer to Toland the deist, an Irishman but not a graduate of Dublin. It was under Browne that Berkeley pursued his studies and won his Fellowship in Trinity College, and as Berkeley's philosophy rests mainly on a Lockian basis it is evident that the *Essay* had by no means lost its authority in the University in consequence of the provost's strictures. To enlarge on the merits and defects of Berkeleianism would here be out of place. It is enough to say that, as all subsequent idealism and semi-idealism rests on the *Principles of Human Knowledge*, so to the *New Theory of Vision* we are indebted in no small degree for the subsequent developments of the Association Psychology, while J. S. Mill admitted that Berkeley had in substance anticipated his celebrated theory of the syllogism.

That the University of Dublin produced Berkeley at this period was not the result of mere chance; for it is plain that for several years both before and after the enunciation of the leading principles of his system, the University was the seat of an intellectual movement mainly directed towards philosophy which had then no parallel in the British Islands. The next fellowship but one that fell vacant after Berkeley's election was won by Edward Synge, to whom Hutcheson acknowledges his obligations in the preface to his *Inquiry into the Original of our Ideas of Beauty and Virtue*.* Robert Clayton, who won his Fellowship at a very early age in 1714, was likewise a writer on metaphysics. William King, Archbishop of Dublin, himself a former Scholar of Trinity College, and the author of the well-known treatise *De Origine Mali*, was undoubtedly in close relation to the College (of which he was an *ex officio* Visitor) at this period, and he founded, in 1718, an additional chair of divinity which still bears his name. Dr. St. George Ashe, already mentioned, was Vice-Chancellor during the provostship of Browne, and under such authorities there can be no doubt that the department of philosophy received its full share of attention. I have had some difficulty in judging of the claims of Dublin University in relation to Francis Hutcheson, the second great philosophical luminary of the period. A Francis Hutchinson appears in the list of graduates for 1725. Hutcheson was then in his thirty-first year, and must have already published the first edition of his *Inquiry* (which appeared anonymously), as the dedication of the second edition is dated Dublin, June 19th, 1725. The next two names in Dr. Todd's alphabetical list of graduates are both given as "Francis Hutchinson or Hutcheson" (dated 1745 and 1772 respectively), so that little stress can be laid on the orthography of the name; and as Hutcheson was a teacher and perhaps an expectant professor it is not unlikely that he found it desirable to take a degree, though at a later age than usual. Synge who, the author tells us, not only revised his proofs, but suggested several just amendments in the general scheme of morality, had resigned his Fellowship for a parish in 1719, and the names of Francis Synge Hutchinson and Edward Synge Hutchinson occur so frequently in the subsequent list of graduates (as the latter still appears in the baronetage of Ireland) that I suspect *our* Francis and his friend were relatives. There can be no doubt, however, that Hutcheson was largely influenced by the wave of philosophic thought that agitated the University during his residence in Dublin, and therefore I think Trinity College may in any event take partial credit for his philosophy. Hutcheson may be now regarded as the acknowledged founder of the Scottish school, and if Berkeley's *Theory of Vision* gave one great impulse to the Association Psychology, Hutcheson's doctrine of Secondary Desires or Passions, proved hardly less fruitful. Indeed it is still from the acquired perceptions of sight or the secondary passions like avarice, that writers of the Association school still derive the leading illustrations of their doctrine. It is probable, too, that Butler had read Hutcheson's *Inquiry* before publishing his famous Rolls Sermons, and perhaps if we had an opportunity of comparing their written with their published form we might discover that these celebrated speculations were not so original as has hitherto been usually taken for granted.* Hutcheson, like Berkeley, built on a Lockian basis, but like Berkeley he everywhere exhibits traces of independent thought. It is singular that, so far as I am aware, no portion of the writings of either of these celebrated Irishmen has ever formed a part of the Trinity College course, though the *Essay* of Locke has never been displaced from the position which it seems to have gained under the provostship of Dr. St. George Ashe.

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* This was absolutely the whole course, and the College authorities received no express power to vary it until 1760.

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* This Synge could not have been the person to whose solution of the problem of the sphere and the cube Molyneux refers in his correspondence with Locke, for he only obtained his B.A. degree in 1709. Synge received the thanks of the Irish Parliament for a Sermon on Toleration preached before them. His admiration of Locke would thus appear not to have been limited to the *Essay*.

After Berkeley and Hutcheson severed their connection with Dublin and its university Philosophy languished, and the long rule of Provost Baldwin (1717-1758) seems to have practically led to its extinction. Edmund Burke indeed wrote his *Essay on the Sublime and Beautiful*, and Dr. Hamilton made an attempt to improve on Descartes' *à priori* proof of the existence of a Deity; but the deplorably low condition of both Logic and Philosophy in the early part of the present century, is sufficiently evidenced by Provost Murray's *Compendium of Logic*, which with Walker's (Fellow) commentary still holds its place in our curriculum. The state of Walker's philosophical information may be judged of from his note on Murray's definition of a "Notion (called by the moderns an idea)" as "*repræsentamen rei in intellectu.*" On this Walker cautions his reader that there is no reason to believe that there is any "resemblance between ideas and the things which excite them." "This was a received principle," he writes, "in the Platonic and other schools, but taken up without sufficient examination. Its falsehood was partly perceived by Mr. Locke, and more fully detected by our most ingenious countryman Berkeley." This sentence was written after the publication of the works not only of Reid but of Stewart.* Judging however from subsequent commentators on Murray, and examination papers set on that work, Walker does not represent the lowest stage of philosophy in Dublin. Not many years ago candidates for honours in Logic in Trinity College were required by one of the Fellows to show that in every legitimate and useful syllogistic mode, if the premisses be false, the conclusion must be false. I have some curiosity to learn how this was proved to the examiner's satisfaction.

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* The Benevolence theory of Hutcheson breaks out in several passages in the Rolls Sermons, though Butler saw reason to modify it before the publication of the *Analogy*; and what is Butler's Principle of Reflection, but Hutcheson's Reflex Sense?

I pass on to the year 1834, before which I can discover no traces of a revival, but in that year a great step in advance was taken—the institution of Moderatorships in Logic, Metaphysics and Ethics, corresponding to a Moral Sciences Tripos at Cambridge, and entitling successful candidates to degrees in honours.† To whom we are indebted for this change I know not, but on the Board or governing body of the College at the time were Dr. Henry Wray, who afterwards left £500 to found an annual prize in metaphysics, and Dr. Thomas Prior who, I believe, was a lineal descendant of the friend of Berkeley. At the first of these Moderatorship examinations, William Archer Butler, the author of the eloquent lectures on Ancient Philosophy, which were published after his decease, obtained the first place. Philosophy at this time formed a very important element at the Fellowship Examinations, but, to say nothing of defects in the course, the examination was conducted entirely *vivâ voce*, and the questions were put and answered in Latin. Candidates were very minutely questioned in a small number of text-books some of which were not very apposite to the subject in hand. Indeed in my own time there have been such works in the Fellowship course in Ethics as Butler's *Analogy*, Warburton's *Divine Legation of Moses*, Conybeare's *Revealed Religion*, King's *De Origine Mali*, Cicero's *De Naturâ Deorum*, and Clarke's *Divine Attributes*.

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* Murray was Professor of Mathematics in Trinity College, and his reasons for the study of Logic are worth recapitulating. "Whether this art be really of any intrinsic use some have doubted. But since logical terms frequently occur in the writings of eminent authors, it appears altogether necessary to have these terms explained, and therefore the principal parts of the art itself; to do this is the design of the following compendium." The commentator before me (Wheeler) says that the eminent author referred to is Locke (!) in whose writings Walker tells the reader he will be introduced to the "new or modern logic."

† The College Calendar containing among other things a selection from the questions set at the more important examinations was first published in 1833. These questions afford a good indication of the progress in every department since that year.

In 1837 the Board took the further step of instituting a chair of Moral Philosophy, of which Archer Butler was the first occupant. The endowment however was only £100 a year with a five year's tenure of office and possibility of re-election; in which condition the Professorship still continues. These terms have of course prevented any professor from devoting the whole or even the greater part of his time to the duties of his chair, and as his lectures seldom "pay" as well at examinations as those of the Fellows who are appointed to deliver Honour Lectures in the same department, the attendance at them is usually very scanty. I have been informed that the brilliant lectures of Archer Butler were sometimes delivered to a single auditor, who strangely enough afterwards became a violent opponent of the philosophy of Plato—the man whom Butler delighted to honour. Nevertheless, Philosophy at Dublin undoubtedly received no slight impulse from the labours of Butler, who retained his chair until his premature death in 1848. He was succeeded by the Rev. William Fitzgerald, now Bishop of Killaloe, who in the notes to some ethical works which he has edited has exhibited no slight powers of original thinking, but not, I think, a very accurate acquaintance with the writings of some of the philosophers whom he criticises. Of the claims of Dr. Moeran who succeeded at the end of Dr. Fitzgerald's five years I know nothing, but it is certain that during his term of office, the number of senior moderators in the department of philosophy, which had reached seven on several former occasions, gradually diminished until 1857, when no senior moderator was nominated. In that year Dr. Webb succeeded to the chair, which he filled for ten years, and I believe that during those ten years there was a greater revival of philosophic culture in the University than had taken place since that which immediately followed the publication of Locke's *Essay*.* The credit of this revival is not entirely due to Professor Webb. The immense improvements introduced into the Fellowship Examinations in Philosophy (or rather in Metaphysics, for he never examined in Ethics) by Dr. Toleken, about the same time, conduced powerfully to the same result. The Statutes of the College until recently required that these examinations should be conducted exclusively by the Senior Fellows of the College, and the consequence was that the Fellowship Examinations were among the last to participate in the general philosophical progress of the University.* The examination papers of Dr. Toleken with his *vivâ voce* questions would probably compare favourably with those set at any other examination in the kingdom, and to them in part is to be ascribed the election to Fellowships of such men as Professor Webb himself, Mr. Mahaffy, Dr. Tarleton and Mr. Frederic Purser.

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* Professor Webb was the first and (so far) the only layman who has occupied the chair of Moral Philosophy—a circumstance which is not perhaps wholly immaterial as regards the cultivation of independent philosophical thought.

It was perhaps unfortunate that when Professor Webb was promoted to the chair of Civil Law the Board of Trinity College had adopted the principle of confining almost all vacant chairs to the Fellows and other officials of the College. They accordingly elected Mr. Abbott, who is best known for his vigorous attack on Berkeley's Theory of Vision, and its subsequent developments by Mr. Bain and others in a work entitled *Sight and Touch.* Mr. Abbott's genius and erudition have not, I think, been hitherto sufficiently appreciated, probably on account of some defects in his manner of exposition; but with the exception of certain improvements in the Fellowship Course in Ethics, I am not aware that he rendered any service to the College as Professor which he would not have equally rendered in his capacity of Fellow. The alterations in the Undergraduate course in Philosophy which took place at the close of his tenure of office were, I believe, chiefly suggested by Mr. Mahaffy. At the end of five years the Board declined to re-elect Mr. Abbott, preferring the claims of the Rev. Dr. M'Ivor, the present occupant of the chair—an ex-Fellow who had retired on a College living many years previously. Dr. M'Ivor describes his system as "Natural Natural Realism" and "Common Common Sense," and he assails the

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* I have in my possession several note-books containing questions and answers in philosophy written out by two candidates for Fellowships, both of whom won that distinction less than thirty years ago, and they are not without interest in showing the manner in which the subject was studied by Fellowship candidates. One candidate writes out 410 questions and answers on Book III. of Mill's *Logic* (evidently the only part of that work in the course), 100 on Book V. *De Augmentis* of Bacon, and 138 on Adam Smith's Sketch of the Moral Systems at the end of his *Theory of Moral Sentiments* (the rest of which work was likewise excluded.) That this minute study of books was not accompanied by a very intelligent appreciation of the systems of the authors is rendered evident by some of the questions and answers which I refer to. Thus, question 73 on Mill is, "What is the general principle of all inductions?" Answer, —"That all inductions, whether strong or weak, that can be connected together by a ratiocination are confirmatory of one another," &c. Again, the general heads to which Mill reduces the import of propositions are spoken of as his "categories," and there is interlined a comparison of them with those of Kant, noticing the omission of Quantity and classing Resemblance as Quality.

Natural Realism and Common Sense of Reid, Hamilton and Mansel, as leading directly to Idealism.*

Philosophy at Dublin exhibits no symptoms of decline. On the contrary the number of Senior Moderatorships awarded in that department last year, eight, was the largest on record, though the number of competing Triposes has been increased from two to six since 1834; and from my personal acquaintance with last year's class of Moderators in Philosophy I do not think they will prove inferior to any of their predecessors either in knowledge or ability. Dr. M'Ivor's lectures and examinations too are calculated to lead to the cultivation of philosophy in a very catholic spirit, especially as he is mortally hostile to Kant, whose philosophy has recently occupied perhaps the most conspicuous place in the Honour course, while, singularly enough, he seems to regard J. S. Mill and Professor Bain with more favour. A word may here be added as to the unusual weight given to the Kantian Philosophy in Dublin during the last fifteen years. The main cause is undoubtedly the care with which Dr. Toleken studied the writings of the sage of Kœnigsberg, and the prominent place which he gave to them in the Fellowship course in philosophy. It was impossible to obtain a high percentage in this part of the work without understanding as well as reading the *Critick of Pure Reason,* and all Fellowship candidates who took mental and moral science as one of their subjects found it necessary to give that work an intelligent study. The movement thus commenced was carried on by Mr. Mahaffy, who, though an Irishman by birth, received most of his education in Germany; but the position which Kant now holds in the Moderatorship course is probably rather owing to the favour with which the Board regard the writings of any Fellow of Trinity College, than to any peculiar desire to teach the philosophy of Kant, which in fact was not introduced into the undergraduate course until the publication of Mr. Mahaffy's translation of Kuno Fischer's Commentary in 1866. The post-Kantian Philosophy has met with a less favourable reception though in Mr. Graham, the author of an *Essay on Idealism,* Hegel has found an ardent admirer. But I do not think the Dublin School is in any sense chargeable with exclusiveness. Philosophers of different schools are read and, I think, fairly appreciated.

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* I believe the only published exposition of the system is to be found in the Notes to Dr. M'Ivor's *Sermons on Religious Progress.* He submitted the leading principles to the Board in a pamphlet form when applying for the chair. The examination papers which he has hitherto set at Moderatorship Examinations in Philosophy are not, in my opinion, free from serious defects. I may perhaps particularise a paper headed "Action" set by him at the Moderatorship Examination of 1874, and published in the Examination Papers which form a supplement to the Dublin University Calendar for 1875. The first four questions in this paper are—"1. 'Nature's Universal Imperative?' 2. Put it in the form suggested by Butler's *Analogy.* 3. Its limits? 4. Kant's Imperative therefore violates it *in limine?*" The remaining questions are of a similar character, all of them pre-supposing and referring to No. 1. Now the professor's lectures did not then form any part of the Moderatorship course, and some of the candidates were non-residents; while the phrase 'Nature's Universal Imperative' did not (nor did any equivalent term) occur in any part of the curriculum. Nor were the remaining questions free from pit-falls, even if the student succeeded in clearing the first fence by a leap in the dark. The intended answer to No. 3, I am informed, was—"it has none," and the violation by Kant was, I believe, meant to be simply that his Imperative *has* limits (though in what sense it is not very easy to see). Some of the questions on Locke, in the paper headed "Cognition" set on the same occasion, will, I think, be new to the admirers of the *Essay on the Human Understanding.*

As might have been expected, Dublin has long since broken its silence in the department of Philosophy. All her professors of moral philosophy,* except Dr. Moeran, have written more or less on psychology or morals, and in addition to them I may mention as writers on philosophy, Professor Maguire of the Queen's College, Galway, Mr. Mahaffy, Mr. William Graham and Dr. MacMahon. Professor Moffett of the Queen's College, Galway has edited a portion of the works of Bacon with valuable notes, and Dr. Tarleton and Mr. Purser have contributed papers on portions of the Kantian Philosophy to *Hermathena.* From our University also issued Mr. Lecky's *History of European Morals;* and, though the writings of Professor Dowden and Professor Tyrrell relate to other subjects, I think the reader will detect in them—especially in those of the former—an undercurrent of philosophic thought which might naturally be expected from the positions which they occupied among the Moderators in Philosophy. Still more directly may the influence of philosophic training be traced in the writings of the late John Elliott Cairnes and of Professor Cliffe Leslie, who occupied a position of equal prominence in the same list.

Undoubtedly then Philosophy has made great progress at Dublin during the last forty years, but a good deal still remains to be done before it is placed in the position which it ought to occupy. I have already referred to the unsatisfactory condition of the only professorship in this department, that of Moral Philosophy, and also to some of the defects in the present

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* They were all Dublin men, and Professors Butler, Abbott, Webb, and M'Ivor were Moderators in Philosophy. Moeran and Fitzgerald graduated before 1834.

University curriculum. The style of examination usually adopted is likewise in many respects objectionable. Minute questions turning on the phraseology of the text-books frequently take the place of an examination in philosophy, and too little scope is given for the exercise of original thought. The examiners selected by the Board—always Fellows of Trinity College, except that the Professor is occasionally called in—are not always fully competent; and since Dr. Toleken's retirement, no member of the Board can be regarded as thoroughly qualified for making the selection. Moreover some examiners, whose competence cannot be questioned, repeat their questions (especially their *vivâ voce* questions which are not published in the Calendar) too frequently; and thus a "grinder" or coach of a few years' experience is sometimes able to tell the student beforehand every single question that Mr. Blank will put to him at the examination. Independently of this, no adequate prizes are given in the department of philosophy. In the examinations for almost all the most valuable distinctions—Exhibition, Scholarship, Studentship, and Fellowship—philosophy forms or may form a part: but all of them can be won without it, and none of them can be won by answering in philosophy alone. A man who competed for a Fellowship some years ago stood at the bottom of the list, although his answering in philosophy doubled that of his nearest competitor, and he likewise took the first place in natural science. When I mention that this circumstance was not considered as giving him any claims to the chair of moral philosophy against his Fellow competitors (between whom, I believe, all the votes of the Board were distributed on that occasion), I think it may be said the Dublin student of philosophy has no very inviting prospect to look forward to. A Senior Moderatorship obtains for him a gold medal and perhaps an exhibition of £5 or £10 a year, tenable for three years provided he keeps his name on the books, but it costs him £16. 16*s* a year to do so unless he is a sizar or a scholar. The most that he can receive for any other distinction in this department (except the Wray Prize already referred to) consists of books to the value of £4, but most commonly he only receives a piece of parchment. This state of things I regard as detrimental to the interests of philosophy in the University. I do not contend that philosophy should be placed on the same footing with classics and mathematics; but in my opinion it should cease to be treated as an adjunct, and a few valuable prizes should be awarded for superior excellence in this department alone. Mathematics and classics no less than philosophy would gain by this separation, for under the existing system, while no amount of proficiency in philosophy will insure success, one who is little more than a smatterer sometimes succeeds in defeating a superior classic or mathematician by taking up philosophy in addition. I have known the first scholarship in mathematics to be won by the worst mathematician among the successful candidates because he scored 95 per cent. in Logic and Locke. This was not only a disappointment to the good mathematicians in the class, but would have enabled the winner to represent himself in a false light to the public had he chosen to do so, and perhaps to obtain some post for which he was totally unfit. And can it be said that answering in (Aristotelian) Logic, even with the recent addition of a part of Mill and Locke, however brilliant, ought to entitle a man to a scholarship in philosophy? If not, the sooner this anomalous state of things is put an end to the better.*

W. H. S. MONCK.

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* It is not easy to give in a small compass an accurate account of the amount of philosophical study required at the various examinations. The course compulsory on all students consists of Murray's *Compendium of Logic*, selected portions of Locke's *Essay*, and about 120 pages of Mansel's *Metaphysics*. A Moderatorship in any department qualifies the candidate for a degree in honours, but all other candidates for the B.A. degree are examined in Stewart's *Outlines of Moral Philosophy*, Butler's *Analogy*, Part I. caps. iv. v. vii. and Part II. (omitting cap. vii.), with Paley's *Evidences*, Part I. Candidates for classical scholarships are examined in a portion of Mill's *Logic*, and candidates for mathematical scholarships in a larger portion of the same, together with the selected portions of Locke and Part I. of Mansel's *Metaphysics*. The Fellowship course is variable from time to time at the discretion of the examiner, and is never published in the Calendar. It is considerably more extensive than the Moderatorship course, and in addition to the authors mentioned in the latter a good deal of weight has been given at recent examinations to the writings of Mr. Hodgson. The Moderatorship course for the present year is as follows: Metaphysics—Locke's *Essay*, Mansel's notes to Aldrich's *Logic*, Mansel's *Metaphysics*, Hamilton's *Lectures*, vol. I. and II., Mill's *Examination of Hamilton* to the end of cap. xiv., Mahaffy's *Critical Philosophy for English Readers*, Vol. I. and Vol. III. omitting Appendices A, B and C, Schwegler's *History of Philosophy* to Kant inclusive; Ethics—Aristotle's *Nicomachean Ethics*, omitting Books iv. viii. ix. x., Butler's *Analogy*, omitting Part II. caps. 5, 6, 7, Butler's *Sermons* and *Essay on Virtue*, Mackintosh's *Dissertation*, Kant's *Metaphysic of Morals*, translated by Abbott, omitting pages 123-209, Mill's *Utilitarianism*, and the Lectures of the Professor of Moral Philosophy. For the Wray Prize, a portion of Bain's *Senses and Intellect* is included.

Additional Note.—Since the foregoing article was written the University Council has passed a resolution removing Logic from the course for Classical Scholarship. The course for Mathematical Scholarship remains unaltered. An attempt was made by the two members of Council who had obtained the highest distinctions in Philosophy to modify the course for the ordinary Degree, but without success. The Lectures

VIII.—CRITICAL NOTICES.

Moral Causation: or Notes on Mr. Mill's Notes to the chapter on "Freedom" in the Third Edition of his "Examination of Sir W. Hamilton's Philosophy." By Patrick Proctor Alexander, M.A. Edinburgh, 1875.

Among the counterblasts to Mill's book on Hamilton was an essay by Mr. Patrick Proctor Alexander, of Edinburgh (*Mill and Carlyle*), devoted chiefly to the chapter on Free-will. In the third edition of the *Hamilton*, Mill included, among his replies to critics, several foot-notes of some length dealing with Mr. Alexander's positions. In a new work entitled *Moral Causation*, Mr. Alexander rejoined; and he was surprised at finding that Mill, while answering two other rejoinders in the fourth edition, did not notice his. He now reprints *Moral Causation* revised and extended. Among the shoal of writings on the Free-will question, this is one that well deserves perusal; both from the acuteness of the reasonings, and also from the vivaciousness of the style, which is turned to account not merely for literary effect, but for giving clearness and point to the author's meaning. He puts in a strong light every appearance of a flaw in Mill's reasonings and modes of expressing himself; showing the advocates for necessity (or Determinism) what are the real or seeming weaknesses of their side.

Admirable as Mill's polemic is, in that chapter of the *Hamilton*, I do not think that he is sufficiently aware of the unsuitability of the current modes of describing the operation of the will. It is by accepting these unsuitable forms that he lays himself open, in my judgment, to the thrusts of an acute and determined critic like Mr. Alexander.

When I find both Professor Calderwood and Mr. Alexander strongly maintaining that Free-will does not mean "uncaused volition," I feel myself obliged to admit that the controversy has made a very great advance, if, indeed, it be not absolutely ended. As a problem of the psychology of the Active Powers of the mind, all that I have ever contended for is that our actions are governed by our feelings, as motives, according to the law of uniformity of sequence; so that the same situation as regards the feelings is always followed by the same voluntary action. As against any one fully conceding this, my opposition seems to be at end. Mr. Alexander wishes to make out that this has been generally allowed by the advocates of Free-will. He endeavours to explain away some very strong expressions to the contrary made use of by Hamilton:—"A determination by motives cannot, to our under-

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of the Professor of Moral Philosophy were introduced into the Moderatorship course by the Board, after the issuing of the Queen's Letter constituting the Council, and declaring that no change in the curriculum could be made without its sanction. The Council has never sanctioned the change, but no objection has as yet been raised by the competitors.

standing, escape from necessitation. Nay, were we even to admit as true, what we cannot think as possible, still the doctrine of a motiveless volition would be only casualism; and the free acts of an indifferent are, morally and rationally, as worthless as the preordered passions of a determined will." From this and other passages it would appear that Hamilton considered that "causeless volition" was an admissible statement of the Free-will doctrine; and it would be highly satisfactory to be assured that this mode of putting it is no longer admitted on either side. For the difficulty then will be to find out what, if any, is the remaining difference.

Mr. Alexander's first issue with Mill is as to the meaning of our being conscious of our freedom, or our ability to act freely, but I prefer to dwell upon the second issue, which contains the kernel of the dispute in one principal aspect. He puts to Mill the question, "Whether having touched the left side of his nose, Mr. Mill did not *feel*, that he could have willed to touch, and have touched, its right side?" He complains that Mill declines to give a simple "yes" or "no," but answers it thus: "I could have touched the right, had I so willed it; and should have so willed, if *there had existed a sufficient inducement*, not otherwise." Now Mr. Alexander may think this a plain question, admitting a plain answer; but, for my own part, I would have declined answering it in any form. Moreover, I do not consider that any step would be gained on either side by answering it, either with or without a qualification. My reason is that it contains two terms that need in the first instance to be defined; while the question in dispute would be equally raised in the act of defining these. The first is the term "could," or its equivalent, "ability," "power." The meaning of this term is pretty well agreed upon, as being simply "what will happen in certain circumstances:" it is Aristotle's potentiality as opposed to actuality. "I am able to walk across the room," means that in a certain state of mind I do walk across. When I am asked, could I have touched the right side of my nose at the time when I touched the left? the meaning is simply this, would I in some definite state of mind have actually touched the right? To answer this in the affirmative would not commit me either to Free-will or to Necessity. The discussion would merely be shifted to another point, namely, what is the state of mind that would have been followed by my touching the right side? Was it the identical state of my feelings that was followed by my touching the left side, or a different state of feelings? Most probably we should suppose the state of feeling or else the intellectual direction given to the feeling was distinct, but what the distinctness consists in is really the whole matter at issue.

But the vagueness of the question appears in another way; namely, what is meant by "I." Libertarians and Necessitarians, in the fight that they make over this word, reveal their hopeless discrepancy of opinion. In one view, "I" is the conjunction of the facts of Mind, as analysed into Feeling, Volition and Intellect, and coupled with a bodily organism. In Mr. Alexander's view this is not all: there is behind a "mystery of the human personality," which it is not permitted to us to analyse farther. With such a reservation in the background, what "I" could do or not do, is very little to the purpose. My motives I know, but a personality transcending my motives, yet coming in as a make-weight in my decisions, I do not know.

Another point of difference between the contending parties, even after they have agreed upon the reign of law in human actions, is connected with the "Moral Consciousness" and "Moral Responsibility." It was with reference to these two notions, that Hamilton postulated Freedom notwithstanding its being in itself inconceivable.

It seems to me, on the other hand, that the meaning and scope of Moral Consciousness and Responsibility should be argued apart from the Freedom of the Will. The divergence of opinion on the subject turns upon a distinct class of considerations. It is averred by one party that "moral," in the sense of right and wrong, is based upon prohibitions enforced by punishment; and that its essential meaning all through must have reference to this fact. It is fully allowed, and carefully explained, that the moral sentiment or conscience, in the better portion of mankind, contains an element of love, good-will, and spontaneous beneficence; but not so as to disguise its real foundations. For when we ask why a thing is right, and not simply benevolent, we must descend to the circumstance of enforcement by some lawgiver. In opposition to this, it is contended by Mr. Alexander and others that this *legal* interpretation ignores and pushes out the *moral* point of view. It may be so; yet that particular debate should be conducted, not under the Free-will controversy, but under the controversy as to the nature of Conscience: I do not see what either Freedom or Necessitation has to do with it. In responsibility to God or to man, I for one see everything that is distinctively meant by "moral;" those that hold otherwise need not introduce free-will in order to say what "moral" is or includes, over and above the legal constraint, real or imagined.

The question of Free-will against Necessity is far more apparently implicated in one aspect of Moral Responsibility—the *just grounds of punishment*. This is a very mixed problem; and the part of it that bears strictly upon the character of the Will seems to me the least difficult. If a man's conduct is ruled by motives, the way to control him is to supply such motives; if he is not to steal, make the act of stealing so painful in its consequences as to overpower the pleasurable attractions. As the adaptation of means to ends, this seems a plain course, in the strictest view of necessity. The intervention of Freedom, in the sense of conduct beyond the scope of motives, or springing out of an unfathomable mystery of Personality, might introduce perplexity into the calculation; but the necessitarian sees no such puzzles; and, to this extent, legislators and governors of men, in all ages, have declared for Necessity.

This is the deterrent view of punishment. There is another view, the reformatory, that comes so far under similar considerations. The difference seems to be, that in the one case the good of the society, *minus* the evil-doer, is sought; in the other, the evil doer is specially considered. A humane sentiment is evoked, by which we are led to regard criminals as partly wicked, and partly unfortunate. To justify this last supposition, we adduce their bad education, their overpowering temptations, their weakly constituted moral nature; and while obliged to punish them, we also pity them; and we may carry our pity so far as to doubt whether they are *justly* punished. Robert Owen would say that such men should be educated and not punished. But he probably did not deny that punishment has, *de facto*, the effect of keeping people out of crime: and I am not sure that he knew whether he was a Libertarian or a Necessitarian: we may call him simply a Humanitarian.

Mr. Alexander is at special pains to make Mill self-contradictory as to the justice of punishing men apart from Human Freedom. I fully admit the difficulty of realising justice in the matter of punishment, but I cannot see that the doctrine of Necessity makes the difficulty, or that the doctrine of Freedom relieves it. Supposing I were to adopt Freedom to Mr. Alexander's entire satisfaction, I should have still to reconcile punishment with abstract justice; in fact, I should have equally to perform that nearly, if not quite, impossible feat.

It is at this point that Mr. Alexander makes use of the "moral" as opposed to the forbidden or the legal. He finds in the existence of guilt or *moral* desert, a justification of punishment; but as the "moral" in my opinion grows out of the legal, although it may be considerably transformed, I cannot see any special force in the use of this word. Even if I were to try and agree with him here too, and were to believe in a doctrine that I cannot understand, I should still have my difficulties about punishment the same as ever. I should be puzzled to draw the line between guilt as "moral" and guilt as merely "legal." More particularly, I could not get over Owen's difficulty of punishing a man that was deplorably ill-educated, as most criminals are. After taking the utmost benefit of Free-will and Moral Desert, I am bound to confess that punishment is a very rough expedient, and falls most unequally. It is essential to the existence of society, and that is its prime justification. It does not answer its purpose unless conducted according to general rules, and under these many a man is victimised. Take the case that shocked George Combe; punishing "as an example." Neither Free-will nor *moral* guilt will palliate this enormity. It rests upon nothing but the *ultima ratio* of social security; for the sake of which we often seize a perfectly innocent person, peril his life, or subject him to any amount of misery. The man has committed a small offence, a mere inadvertency; there is some great danger apparent; and he receives the punishment of the worst felon.

It would take a long chapter to express all the difficulties and anomalies connected with punishment; but while some of them appear to me to be aggravated by the hypothesis of Freedom (so far as I can understand the meaning of it), some of them are smoothed by it. The proper working of a penalty is to make everybody abstain from the act; ninety-nine out of a hundred are in such a healthy condition of the will that they do abstain. The hundredth person commits the act. Might we not throw the blame upon his antecedents? Might we not say that any one of the others in his situation would have erred? Yet the penalty must be inflicted. Its efficacy in keeping the ninety-nine straight depends upon its being applied to the hundredth; that is enough for us. We desire to make allowances in certain cases, if we think that the effect upon the mass will not be impaired. Nobody could state the nature and extent of these allowances better than Mr. Alexander does (pp. 206-7). He tells us truly enough that in the mass of cases criminal justice cannot take account of the state of mind of the offender, "because we are incapable of doing so with any approach to scientific accuracy, and because criminal legislation can only proceed by a general rule of particular penalties attached to particular acts." Hence we inflict punishments that we can with difficulty reconcile as just in the individual case. But what has all this to do with Free-will? The consideration that interfered with the justice of the punishment is that the individual punished was morally weak; that his motives, including the fear of punishment, were not strong enough to keep him right; and if he had only had average advantages in respect of constitution and education, he would not have gone astray. Now, it seems to me that this is to state his case exactly in terms of Necessity, and not in terms of Free-will.

Justice in punishment seldom goes beyond proportionality to the mischief inflicted. This is the just idea in men's minds; and it points rather to retribution than to prevention. Prevention comes into the court, when the prevalence of the offence is looked at; and in this view the comparative ill desert of the criminal goes for very little. A very wicked man will get off more easily, if the offence is not likely to be repeated. In a word, punishment is nine points expediency or utility, and one point justice. It deals with the "legal," as opposed to the "moral" (if there be an opposition); and it works in the sphere of the necessitarian's "motives," and does not seek to penetrate the recesses of the libertarian's "personality."

Mill endeavoured to draw a distinction between Necessity and Fatalism, which Mr. Alexander believes he has triumphantly demolished. The weakness of Mill's position is still the giving way to inappropriate language. To say "we can improve our character, if we will" is at least an infelicitous rendering of the cause of self-improvement. An opponent can ask, Why don't we will? The answer is, there are not sufficient motives present. Why are there no motives? Our constitution and our antecedents have been unfavourable to the growth of the motives. How is this to be distinguished from Fate or Fatalism? A pure deadlock.

This suggests another remark on the origin of the Free-will difficulty. To a person watching the conduct of a number of human beings (they being unaware that they are noticed), the sequence of motives and actions would not present any puzzle beyond what is due to mixture and to occasional concealment. The supposed observer will witness the occurrence of motives—hunger, cold, ease, society, applause—and he will see the actions that they prompt in each individual; he will farther see great differences in the influence of the same motives on different subjects; he will see some inclined, some disinclined, to rectitude. If he continues his observations over a long interval he will discover cases where the bad have been restored to the paths of virtue; and he will perhaps be curious to know what has made the change. If his means of knowledge and his sagacity are considerable, he will be able to bring those changes under the general laws, already traced by him, as to the operation of motives. He will compare the reforming individuals with some that are still going to the bad; and may probably be able to suggest some influence that, if brought in among the existing motives, would reform some of these last. If he were a philanthropist as well as an observer of human nature, he might endeavour to bring to bear the missing power; or, it might be, to withdraw some countervailing influence in whose absence the scale would be turned to virtue. Is there any fatalism in all this? Whether it be fatalism or no, it is recognised use and wont.

The simplicity and intelligibility of the situation is complete only so long as the observer and the observed are different; and so long as the observed are unconscious that any one is observing. Let now the observer announce himself as watching the moral conduct of the subjects under his eye. Let him come forward personally to take a part in strengthening their virtuous tendencies. If he is very guarded, he may still preserve an intelligible and straightforward course. He may caution the evil-doers by bringing before them the bad consequences of their evil deeds. He may also encourage by fair promises, and so on. But now let him adventure upon a colloquy, to this effect:—A. "Why do you allow yourself to be a victim of intemperance?" B. "I know that it is wrong, but I cannot help it." If A is wise, he will read him a fresh homily on the evils of intemperance and the blessings of sobriety: if he is unwise, he will say, "You can help it, *if you will;* you are a *free* agent." This is a real puzzle, both to the man himself, and to everybody else; and is on the high-road to the mystery of free-will.*

A worse stage is reached when a man begins to interrogate himself as to what he might, could or would do in the unfortunate attempt to become "conscious of freedom." The situation becomes too complicated for any language that has yet been invented: in trying to express it in terms of Necessity, we can hardly avoid contradictions; and the Free-will advocate knows how to make capital out of the perplexity. In point of fact, however, the circumstance of looking into one's mind, ought not to alter the essential workings of mind; what is true from our observations of other men, should be true of ourselves. We ought, no doubt, to see ourselves as others see us, but this is a hard task; the seeing and the seen become inextricably confounded. Now when we wish to study the laws of a difficult phenomenon, we prefer to look at it in the most advantageous, and not in the least advantageous light. All the laws of the mind must be in full operation in a man that is observed by some other man; what is true of the individual so observed must be true of men generally; and, if we cannot see the phenomenon in the same clear light when we observe ourselves, we should blame the awkwardness of our point of view, and not declare that a novel phenomenon has been generated. The self-examination does not alter the facts of human nature; it can only alter our perception of them for the better or for the worse. I maintain, therefore, that the theory of the Will that would be framed in the observation of human beings by an observer apart, is most likely to be the true theory; and that a puzzle arising only when we are both observer and observed is purely factitious and undeserving of serious regard.

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* Although the language—"You can, if you will," is unsuitable in the point of view of psychology, it is not devoid of persuasiveness. It is an appeal to the man's pride or feeling of dignity. The noblest passage in the *Castle of Indolence* is addressed to the sentiment of pride through the supposed omnipotence of will.

A. Bain.

Théorie Scientifique de la Sensibilité. Le Plaisir et la Peine. Par Léon Dumont. Paris, Germer Baillière, 1875.

In this work M. Dumont undertakes the very important task of constructing a complete theory of Pleasure and Pain, and of making this principle the basis for an exhaustive classification of their several kinds. He justly remarks that the subject has not received the attention which it deserves. Psychologists, as a rule, do not make the distinction between pleasure and pain a leading principle of division in their classification of the feelings, but rather distinguish these according to other qualitative peculiarities, those of the several orders of sensations and emotions. On the other hand, the conditions of pleasure have generally been studied by writers on æsthetics, that is to say in connection with one department only, even though a very important department, of pleasurable sensibility. M. Dumont forcibly contends that the pleasures of beauty and of art can only be completely elucidated through a study of pleasure as a whole.

The author appropriately commences the first part of his work, the General Analysis, by a critical review of the principal theories hitherto propounded on the subject. He divides these into four main groups: (1) the doctrines of the Epicureans and the modern pessimists, which regard pleasure and pain as depending exclusively on the phenomena of desire and volition; (2) the doctrines of Wolff and of the Cartesians, which agree in referring them to an intellectual phenomenon or a judgment; (3) the Platonic view, shared by Aristotle and certain modern writers, which connects them indiscriminately with all modes of activity, though it refers them to the *quality* of the activity and to an absolute type of perfection; and (4) the 'relativist' theories, more or less distinctly propounded by many modern writers, which, while connecting them as the foregoing with all modes of activity, make them depend solely on the *quantity* of the forces and movements which constitute the individual.

M. Dumont then proceeds to define his own theory of the subject, which he considers to be simply a more exact form of the last-mentioned or relativist view. Thus he improves on Hamilton by saying "that there is pleasure whenever the *ensemble* of forces constituting the *ego* is increased, provided this increase is not large enough to produce a movement of dissociation of these same forces; there is pain, on the contrary, when this quantity of force is diminished." He goes on to say that he places the condition of pleasure not in the expenditure of force but, on the contrary, in the fact of receiving it, and accordingly he contrasts his view with that of Professor Bain, which, by connecting pleasure with an increase of some or all of the vital functions, really makes it dependent on an expenditure, that is a diminution, of force. His theory receives a good deal of fresh illustration in connection with the classification of pleasures and pains, and our estimate of it may with advantage be postponed till we deal with this part of the subject.

Having thus defined the conditions of pleasure and pain, and shown in an interesting way how completely this view establishes the relativity of the phenomena, M. Dumont gives us a curious chapter or two on the metaphysical aspects of pleasure and pain. This part of the work, like certain portions of M. Ribot's work on Heredity, illustrates a powerful resistance on the part of scientifically trained French minds to the demands of the extreme positivists. First of all, pleasure and pain are said to be the consciousness or subjective face of the composition and the separation of forces. Again, our state of sensibility at any given moment is single, though there are numerous elementary sensations entering into the state of consciousness of the moment. The sum of pleasures and pains arising from the many augmentations and diminutions of force at the time blend in one total state, which may be either a preponderance of pleasure or of pain, or a neutral condition. This fact, which strikes one as far from being incontestable, appears to M. Dumont to have a close bearing on the existence of a substance of mind and of a universal substance, which he is prepared to accept on other grounds as well. Once more, the author considers that his conception of pleasure and pain, as the subjective aspects of the actions of forces, necessitates the conclusion that sensibility is coextensive with force, and that no mode of material existence is absolutely without some analogue of the subjective face or consciousness.* The author hardly presents the argument for the universal correlation of movement and feeling quite accurately when he urges that "unknown existence must be supposed to be analogous to known existence till the contrary is proved." The "unknown" existence which is here referred to, for example, the inorganic world, is known to differ from existence which is admitted to be conscious in certain respects, and the real question is whether these differences involve a further dissimilarity in the absence of a concomitant consciousness. Another argument of M. Dumont is somewhat more plausible. He extends the principle of the conservation of energy to mind and contends that mental existence cannot arise without a previous mental existence.

We now reach the second part of M. Dumont's treatise, the Special Synthesis, in which he seeks to apply his general conception of the conditions of pleasure and pain to the several well recognised varieties of pleasurable and painful feelings, including the æsthetic sentiments. It is here that we can best judge of the scientific value of his main thesis.

Pleasure being the accompaniment of an increase of force, pain of a diminution, these emotions will have to be classed according to the various modes of this increase and decrease. Now, "the diminution of energy, from which pain results, takes place either in a positive or in a negative manner: positive, when it follows from an increase of expenditure or of activity; negative, when it consists in a suppression of excitation, of reparation or of vital reaction." Thus we have two main classes of pains: (1) those which depend on an excessive loss of force; (2) those which result from an inadequate supply. Similarly there are two principal divisions of pleasures: (1) positive, which arise from an increase of excitation, and (2) negative, which depend on a previous diminution of expenditure and a resulting accumulation of energy.

The positive pains comprehend those of effort and fatigue, as well as the effects of the ugly, the disgusting, the immoral, &c. M. Dumont includes these last phenomena on the ground that they depend immediately on the excessive effort of thought which is involved in the conception of such objects as contradict our customary associations. The negative pains again comprise, first of all, the sensations of feebleness and exhaustion which arise from insufficient nutrition and reparation, and secondly, "pains" in the narrow sense, that is to say, such as have their origin in injuries to the tissues. The author refers the pain in these latter cases to the detachment from the system of a number of forces which were previously connected in reciprocal action with certain of the remaining forces, in consequence of which these latter have to act without compensation or reparation. Next follow the negative pains of the intellect, such as *ennui*, doubt and impatience. These effects depend, according to M. Dumont, like the pains of bodily hurts, on an insufficiency of reaction, on the sudden arrest of a certain quantity of force put into action in the shape of a desire or expectation. Of a similar character are the negative pains of the heart, namely, chagrin, fear, sadness and pity, all of which are referred to a frustration of desire.

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* Another curious conclusion which M. Dumont draws from his metaphysical interpretation of pleasure and pain is that these opposed phenomena are always exactly equals in quantity. This co-ordination of a doctrine midway between optimism and pessimism, with the conception of universal sensibility, should be compared with Hartmann's method of connecting his pessimistic conclusion with much the same conception.

The contents of the two classes of pleasures are of very unequal extent, the positive being greatly in preponderance. Under the negative pleasures we have, first, those of relief and repose, which arise from a cessation of a positive pain, and, secondly, those of gaiety, which are experienced after energy has been accumulating through an excess of supply over expenditure, and, as a consequence of this, a disposition has been generated to seize the first opening for activity of any kind. The positive pleasures are subdivided into two classes: (*a*) those depending on an action of external objects, sensuous enjoyments, and (*b*) those resulting from an internal excitation by the passage of a certain quantity of force from the unconscious to the conscious regions of the organism. The latter division includes the pleasures of reflection, meditation, those of imagination or of taste, and those of the heart, namely, joy and hope.

Every reader will recognise that M. Dumont has here made a very creditable attempt to frame a truly "scientific" classification of pleasures and pains, and no candid critic will deny that he has shown great ingenuity in working out its details. Yet the result cannot, I think, be called quite satisfactory. There seems to be a certain want of scientific clearness in the very groundwork of the classification, and, in addition to this, many of the phenomena look as though they were quite arbitrarily forced into places to which they do not naturally belong.

First of all, then, it is not very clear what M. Dumont means by *force* when he defines all pleasure as depending on an increase of force. This seems to mean one of two things, either an increase of potential nervous energy or an augmentation of nervous action or excitation. The pleasures of sensuous stimulation cannot be said to be an increase of force in the first and more natural signification of the term, for some quantity of the store of potential energy is obviously expended in the process. If we adopt M. Dumont's classification of pains as complete, we may no doubt reduce all the phenomena of pain to a depression of nervous energy or to an exhaustion of the nervous substance, but I fail to see how the author is to bring his various orders of pleasure under one simple principle such as he formulates.

In the second place one might object to some of the details in M. Dumont's grouping of the pleasures and pains. Sometimes the division of the groups is not exact enough to be scientific. For instance, the positive and negative pleasures are not sharply separated.

The gaiety which flows from a rise of nervous energy implies the presence of stimuli as well, and were such stimuli wanting the accumulation of energy would become the direct cause of pain. This objection points to the fact that pleasure has as its combining conditions a certain supply of nervous energy and an adequate stimulus for raising this energy to the form of nervous excitation. Again, some of the classes do not appear to be referred to a right principle. For example, to bring the pains of bodily hurts and those of doubt and fear under one set of conditions strikes one as a somewhat violent proceeding. Still again, the author hardly inspires confidence when he refers the pains of embarrassment, etc., to an insufficiency of reaction, overlooking the influence of the bare fact of discordance among mental states; and his resolution of the pains of the ugly and the disgusting into a mode of fatigue (occasioned by the extraordinary effort of conception required) looks very much like the invention of an imaginary cause when a real one is sufficiently apparent. Finally, M. Dumont's classification strikes us as incomplete in one or two particulars. It assigns no place, for instance, to the pleasures of harmony. It may be added that he discusses, but hardly accounts for, the pains which accompany certain sensuous stimulations in all degrees, such as bitter tastes.

In the discussion of the nature and characteristic accompaniments of the several orders of pleasure and pain M. Dumont is always ingenious and often very happy. The most original contribution in this part of the work is the treatment of the very difficult question of the ludicrous. M. Dumont argues, against Mr. Darwin, that laughter must be rigidly separated from smiling. He sets out with the effect of tickling on which he has made some valuable observations. He finds that in all contacts and movements over the bodily surface which produce laughter there must be a certain irregularity as to the part touched, the intervals between the contacts and the direction of the moving hand. Combining these facts with the common observation that people are unable to tickle themselves, we conclude that the effect depends on a mental process, namely, a frustration of expectation. Similarly, he thinks, all other cases of laughter may be resolved into contradiction between our pre-existing ideas or anticipations and our present perceptions. The two "contradictory" forces brought into play cannot converge in a single conception, and are consequently obliged to flow off into other channels, namely, those of muscular activity. The contradiction in the case of the ludicrous does not give pain as in that of the ugly, since there is no triumph of one idea over another but only a double excitation of the mind which involves an augmentation of force. This theory which, as the reader will see, approximates in some points to that of Mr. Spencer, is very ingeniously conceived and worked out, though it seems to me, like most other single principles, to fail to account for all the phenomena of laughter.

After discussing the various pains and pleasures in detail, M. Dumont expounds the laws of emotional expression. He has some good remarks on Mr. Darwin's principle of antithesis which he is inclined to reject on the same grounds which the present writer has elsewhere put forward, and he is very clear in showing that the characteristic expressions of pleasurable and painful emotions illustrate an exciting effect in the first case, and a depressing effect in the second. Among the remaining chapters there is one on the relation of pleasure and pain to volition which is not a little curious. M. Dumont denies that pleasure or pain in any form can be a motive or cause of volition, and urges that when we consciously pursue pleasure as an end it is the love of pleasure, that is to say, a certain instinct or impulse, which really determines the action. But the author's view is not sufficiently developed for us to be able to appreciate its full significance.

James Sully.

Grundzüge einer Extensionalen Erkenntnisstheorie. Ein räumliches Abbild von der Entstehung der sinnlichen Wahrnehmung. Von H. Czolbe. 1875.

The above work, published after the author's death by his friend and biographer, Dr. E. Johnson, is but the first part of an exhaustive treatise which Czolbe intended to contain the matured results of his own speculation and at the same time to be an exposition of the ultimate metaphysical theory of the late F. Ueberweg. It gives, however, the groundwork of the system, and is sufficiently complete to enable some estimate to be formed of its meaning and value. The work has a double interest, as the final production of an original and acute intellect, and as the first satisfactory account of Ueberweg's speculative principles, about which there has always been doubt, even after the remarkable notices by Lange and Dilthey. The entire treatise, according to the author's design, was to bear a title—*Space and Time as the one Substance of the Infinite Attributes of the World*—which indicates very clearly the nature of its contents.

The formal principle of Czolbe's speculation, in this as in his previous works, is the desire to render clear to the imagination or pictorial faculty all the connections of things which make up the universe. Intelligibility with him means capability of being pictured in *Vorstellungen*. Whatever cannot be expressed in *Vorstellungen* must be banished from philosophy as irrational, inconceivable. Czolbe rightly names this principle the mechanical, and by its means he claims to have disclosed a new relation between philosophy, mathematics and natural science. It is evident that the connections of things could not be pictured or represented in *Vorstellungen*, if the ultimate realities were themselves unextended; Czolbe, therefore, in order to satisfy his formal principle, has to prove in opposition to Herbart in particular that all ultimate realities are extended, and in opposition to psychologists in general that mental phenomena are also extended. The second of these problems brings him face to face with the theory of vision, in which, he says, lies a whole system of philosophy. Great part of the present work is taken up with an acute criticism of Helmholtz's empirical theory of the origin of our idea of extension, and Czolbe's remarks deserve the most careful attention both from psychologists and physiologists.

Of the six sections into which the work is divided, the first four contain the groundwork of the theory, and we shall here content ourselves with a brief summary of the results attained. Section I. gives the proof that all sensations (*Sinnesempfindungen*) are extended substances, endowed with two attributes, consciousness and specific quality. The author starts from the position that our knowledge of material objects is mediated by the causal judgment, which, like other so-called Laws of Thought, is a generalisation from experience, and has necessity only because it mirrors a real connection among things. This causal judgment compels us to suppose some cause for the changes that take place in the representation of our own person, to suppose that there is a subject. We are also driven to the supposition of causes other than the subject, to natural objects whose actions give rise to perceptions. Of such perceptions, it is manifest, Czolbe thinks, that those of sight and touch are spatial, or extended in three dimensions. He offers no proof save the assertion that a geometrical plane cannot be *thought* otherwise than as located in space, *i.e.*, as having space before and behind it. With regard to sounds, smells and tastes, these are not geometrically mensurable, but they are not on that account to be thought as unextended. They are obscure because their limits cannot be brought clearly into consciousness, which results from the anatomical structure of their respective organs. All perceptions are composed of complexes or groups of separate points of sensation, corresponding to the mosaic-like arrangements of the nerves of sense. But these sensation-points are themselves extended; they cannot be thought as mathematical points, for these involve the notion of the space in which they lie. Every sensation must have extension in three dimensions; it is impossible, unthinkable, to construct the extension of space out of unextended elements. But each extended sensation has two properties, that of being consciously perceived and a certain specific quality. Consciousness (*Bewusstheit*) is simply a quality of so-called psychical facts; by abstracting it we attain a true knowledge of the characteristics of the objects which mirror themselves in our representations. This view of consciousness is the πρῶτον ψεῦδος of Czolbe's theory. A more careful consideration of what is involved in consciousness would have cleared up many of the difficulties in a theory of space, and would have prevented the confusion of psychological fact and ontological inference. No explanation is given of this quality, consciousness, about which we should have wished some information; and matters become even more complicated when we are informed that attention directed towards the representation of one's own person is self-consciousness! Out of such self-consciousness there grows up gradually the notion of our physical and psychical personality, otherwise called conscious self or *Ego*. This *Ego* is in no way to be identified with the subject which we are bound to suppose as the cause of certain changes in the representation of our persons. These extraordinary results are due to the author's neglect of a principle which he might have learned from his revered master, Lotze, that no mechanical addition of psychical elements will ever produce the unity of self-consciousness. Nor is the fact that consciousness of self grows and deepens at all incompatible with its primitive unity.

In the Second Section the author brings forward more prominently than in his previous works the notion of space. By abstraction we form the idea of a vast blank extension. But this representation must mirror some reality. There must be *in rerum naturâ* a vast space in which all things are. Such space, however, is not to be looked upon as a receptacle in which things are placed, but rather as pure continuity interpenetrating the universe, the *Grundlage*, *fundamen*, or mother-matter of all things. We must also think this vast space as enduring, as permanent, and time may be legitimately defined as its fourth dimension. The combination of space and time is the one and original substance of the world, in which all qualities exist, and which manifests itself in the multiplicity of things. In this way Czolbe thinks he has given an empirical interpretation of Spinozism.

The Third Section discusses the origin of sensations and representations. Conscious sensations, if we may use such an expression, are only quantitatively distinct from those called unconscious. The psychical elements attract one another or concentrate; and, as we can have a clear picture of this process only if it be truly mechanical, it must be supposed that the concentration is a veritable thickening, and that the attractive force is a species of magnetic action. As consciousness arises out of unconscious sensations, these must be pre-existent in the brain in order to be excited. And, as it again falls back into unconsciousness, it is evident (?) that the sensations must be both elastic and in continuous connection with one another. From the continuity it follows that sensations are not contained in the brain, which is composed of discrete atoms. Further, as continuous unconscious sensations can only be thought as infinite, there must be diffused throughout the whole universe an elastic sensation-substance or World-Soul. To this strange conception of the diffused world-soul Czolbe was driven by criticisms on his earliest work, *Neue Darstellung des Sensualismus*, in which it does not occur. By means of it something exceedingly unlike the origin of consciousness may be pictured, but there is not a ray of light cast on the difficulty. After all, these mechanical explanations are nothing but analogies, and should never be accepted as solutions. What possible advantage is there in saying that a conscious sensation is roused by the mechanical excitation of an unconscious sensation?

Czolbe has thus posited two ultimate elements, Space in four dimensions, and a World-Soul. In the Fourth Section, we reach a third element. The causal judgment compels to the admission of natural objects, which give rise to representations or pictures. These objects must be tri-dimensional and in time, of various magnitudes and so on, corresponding to the pictures of them. Physical researches lead us to the conclusion that real bodies consist of atoms, small extended particles, which may not be indivisible in imagination, but are undivided and not interpenetrable. As these atoms cannot of themselves originate motion, they must be endowed with force. Forces must be regarded as penetrable substances, surrounding the atoms and extending in space. Action at a distance, cohesion and attraction can only be explained on this hypothesis. It is not probable that physical science will bear out the somewhat rash speculations indulged in by Czolbe in this part of his work.

The ultimate realities in this theory of the universe are, accordingly, the World-Soul or diffused mass of unconscious mental stuff, the world of Atoms endowed with forces, and the Space in which these have their being. By means of these elements a clear, mechanical explanation of natural processes may be attained, and philosophy will become an ideal science. The results of the theory do not appear in the present work, and we shall look for them with some impatience.

The two concluding Sections treat of the mechanism of sensation and of the field of vision. In both important contributions are made to these difficult problems, and in both the author's peculiar boldness in pushing his principles to their logical result is apparent. Especially remarkable is the discussion of visual space. After careful discussion, Czolbe localises the field of vision in the region of the optic thalami and corpora quadrigemina, where there is anatomical provision for combination of the two fields of vision, and where resides a peculiar force or complex of forces which mirrors the retinal picture. Now the field of vision is very large, and therefore the portion of the brain where it is located must be equally large. Czolbe admits the consequence at once. Our real brain is colossal and extends as far as the field of vision. So with our real hand and with every real object. All are of colossal magnitude. The brain as we see it and our own person are but diminished pictures of the reality. In this curious theory, Czolbe agrees to a great extent with Ueberweg (see Lange, *Gesch. d. Materialismus* ii. pp. 516-7), who was driven to it as the logical conclusion from the doctrine that psychical phenomena are actual substances. It is this doctrine, particularly in relation to the theory of vision, that requires fresh attention from psychologists, and many valuable suggestions towards its discussion will be found in Czolbe, who had made a particular study of the subject.* ROBERT ADAMSON.

Kritische Grundlegung des Transcendentalen Realismus. Von EDUARD VON HARTMANN. Berlin: Duncker, 1875.

This is not a new work, but a second and enlarged edition of the author's *Das Ding an sich und seine Beschaffenheit.* It marks, however, an advance upon that book, as containing a more systematic attempt to lay the foundations of a theory of Transcendental or Critical Realism. Readers of v. Hartmann's *Philosophy of the Unconscious* will remember a chapter dealing with the traces of design in nature, in which the writer comes to the conclusion that we are able to infer with a degree of probability that reaches practical certainty the existence of spiritual causes of material phenomena, which are inaccessible to immediate knowledge. All knowledge must rest, in the first instance, upon experience; but v. Hartmann argues that through induction we may attain to an assurance of the identity of the fundamental forms of thought and being, and draw logically valid inferences therefrom. The possibility of illusion is not excluded, since all our knowledge may be a chimera having only subjective existence, without any external reality corresponding to that which we are yet compelled to represent to ourselves as real. This possibility bars the way to a scientific demonstration of absolute truth, for our knowledge is necessarily subjective, else it would not be ours; but is it reasonable to believe that the essential condition of knowledge is the source of universal illusion? Refusing to think so, v. Hartmann holds that metaphysics may be systematically studied with the conviction that truth will be attained.

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* A very full notice of Czolbe's opinions is given by Dr. Vaihinger in the *Phil. Monatshefte*, Bd. xii, Hft. 1,

The question of the truth of our knowledge—whether, namely, thought corresponds with existence, or whether we must for ever remain shut up within our consciousness—is fundamental, not only to metaphysics, but to all other sciences as well. If our knowledge be mere *Schein*, explanation of the phenomena given in experience is impossible. The difficulty is evaded or trodden down by the so-called "Common Sense" philosophy, which, as appealing to blind belief that can give no account of itself, is a negation of philosophy, while the attempts to solve it by attributing to man an organ through which he may have immediate knowledge of the supra-sensible have been failures. But philosophy cannot give up the problem without betraying its mission and sealing its own fate. It is the merit of v. Hartmann that he deals with the question in its historical connections; for there is a profound meaning in the saying that "Philosophy is the History of Philosophy." Kant is the classical authority of modern philosophy in regard to the theory of knowledge, since he planted it on the solid ground of experience. From Kant's doctrine of the origin and nature of knowledge has come the whole subsequent philosophical movement which continues till now. The idealistic side of Kant's theory was consistently developed by Fichte and Schopenhauer, and, with considerable admixtures of Realism, by Schelling and Hegel. V. Hartmann essays to found a realistic doctrine on the philosophy of the Unconscious, and thus to carry further forward the work of modern thought. The *Critical foundation of Transcendental Realism* is a development of the *Philosophy of the Unconscious;* but the author maintains the historical connection of his views with those of the great thinkers who were his predecessors. More particularly he claims to have carried on the work begun by Kant, while applying to the theories of the author of the *Critick of Pure Reason* the corrections demanded by criticism and modern science. There are only three distinct standpoints for a theory of knowledge, Crass Realism or "Common Sense," Idealism, and Transcendental which is Critical Realism. In opposition to the Idealists, v. Hartmann holds to the existence of a Real other than the representations of consciousness, but it is attained mediately, and not by any immediate apprehension of thought or intuition. This Real, which is the cause of the phenomena of subjective experience, is transcendent, as lying outside consciousness; our direct knowledge of its effects in experience is immanent, and our indirect knowledge of itself as cause, though immanent too, is also transcendental. The Realism of v. Hartmann rests upon the relations or references of thought to a Transcendent, the existence or reality of which is an inference attained through reflection on psychological experiences, or an induction from what is empirically given. Our knowledge of the externally real or transcendent therefore rests on the law of causality. The transcendental applicability of our forms of thought and intuition, or of the entire contents of our consciousness, to real existence, affords the only satisfactory explanation of the phenomena of our subjective experience, whereas Idealism involves the order of the universe in a wild dream, a bundle of unintelligible illusions. Either there is no knowledge, no real experience, and all our supposed knowledge and experience is illusory, or the forms of things *per se* correspond with the fundamental forms of thought and intuition. The categories and the intuitions of space and time are consequently forms of things *per se;* and we are able to trace Reason in all existence, and to regard the Kosmos in its origin and development as the teleological process of logical self-determining Thought. Certainty is not obtained, but we secure a scientific hypothesis confirmed by a vast induction of facts, which overcomes the positions of absolute illusionism. Critical Realism is Crass or "Common Sense" Realism placed on a scientific basis.

V. Hartmann's exposition contains a powerful and incisive critical investigation of the Kantian Æsthetic and Analytic, deserving attentive consideration. We have only had space now to indicate the results he reaches; but we cannot close without expressing satisfaction at the much healthier tone of this work as compared with the repelling pessimism of *The Philosophy of the Unconscious.*

J. Scot Henderson.

IX.—REPORTS.

I.—Physiological and Pathological.

Colour-Blindness.—During the year 1875 various papers have been published in Continental journals on this subject. The theory of the perception of colour proposed by Thomas Young, and resuscitated by Helmholtz, has met with considerable opposition from various physiologists, more especially from Fick, Wundt, Dor and Schirmer; the chief objection being that certain of the phenomena met with in colour-blind people cannot be accounted for by the theory. Holmgren of Upsala (Om färgblindhetens theorie, kritisk öfversigt. *Upsala Läkareför förhandl*, 1874, H. ii., s. 119; H. iii., s. 187—reported in *Centralblatt für die Medicinischen Wissenschaften*, s. 231) attempts to meet these objections and strongly supports the theory of Young. He points out that, although a colour-blind person does not correctly see a primary colour, one must not conclude that he is entirely without the corresponding organ and has no corresponding sensation. A colour-blind person may have difficulty in describing the sensation he experiences when a particular colour is placed before his eyes. It must also be remembered in examining an eye supposed to be colour-blind that, according to Purkinje, the peripheral parts of the retina are colour-blind to red, and, according to Woinow, to green also; though Woinow's statement as to green is doubted by many physiologists. According to Holmgren, it is pure chance whether one who confounds green with red has been educated to give the correct name, and he had the opportunity of examining two colour-blind persons with the result of having this view confirmed. The one, A, applied the term *green* to yellow, brown and pink; but the other, B, called the same group of colours *red*. There can be no doubt that colour-blind persons have usually educated themselves to give a particular name to a particular sensation, and this must be kept in mind by the physiologist while he is examining such individuals.

In his paper Holmgren develops and criticises a method of detecting colour-blindness proposed by himself some time ago. This method, which I have had the opportunity of verifying, is to obtain grey from three primary colours on a rotating disk, such as a Maxwell colour-top; when colour-blindness will be betrayed by the fact that a larger sector of the absent primary colour necessary for the production of white is admissible for a colour-blind than for a healthy eye. A colour-blind person may also apply the same name to combinations of primary colours as to combinations of white and black. Thus Holmgren has shown that his patient, A, confounds a bluish-green with a lighter green, and a greyish red with a dark grey. Again A and B confound the same grey tint (produced on the disk by 40 degrees of white with 320 degrees of black) with a purple got by mixing red and blue; but A calls the grey *red*, while B calls it *green*. This simple experiment shows that colour-blind persons may designate colour-blind impressions differently, although these impressions to them are quite identical. Holmgren also found that, by experimental observation, he could work out a kind of personal equation for each individual. Thus in the case of A, 285° red + 75° white equalled in sensational effect 215° green + 145° black; and in the case of B, 280° red + 80° white = 175° green + 185° black.

Holmgren further permitted his patients to select particular colours for themselves, and he tested them as far as possible with the same intensity of light, although that was a matter of considerable difficulty. The general results were the same as above indicated. The conclusion he arrives at is that the perception of colours in different individuals depends on the conscious comparison of different degrees of irritation of retinal elements. If one of these elements be irritated disproportionately strongly, perception of colour may vary according as that element is either one of three or one of two constituents of the retina. He regards the sensation of black as repose of all three elements. Finally, he recognises the importance of taking into consideration possible changes or differences in the central organ in different persons in forming correct ideas regarding questions of this kind.

Th. Hochecker has made various interesting observations on colour-blindness in his own case, which he has recorded, along with remarks by Leber and E. Hering (*Centralblatt f. die Med. Wissenschaft*, p. 748.) Hochecker applies to coloured objects only the names, white, black, brown, red, yellow, grey and blue. He cannot recognise green or violet. By red he means the colour of sealing-wax. The lips appear to him grey; the rose, the blue sky and the redness of youthful cheeks appear to him alike. With the colour-top, he found that for his eye all sensations of colour might be produced by mixtures of blue, yellow, black and white. He confounded a reddish purple composed of 326° red + 34° blue with a grey composed of 20° white + 340° black. The bluish-green given by 215° green + 145° blue he confounded with a lighter grey made of 215° white + 145° black. The red tending to purple and the bluish-green are complementary. Such colour-mixtures as give to the colour-blind eye the sensation of grey have to a normal eye the tint of the absent primary colour, or of its complement. Now as the red was confounded with a much darker grey than the complementary bluish-green, there can be no doubt that Hochecker's eye suffers from *red-blindness*. In the spectrum he sees only two colours which he terms yellow and blue. He sees no red, and he places the commencement of the spectrum within the orange, part of which is also wanting in his consciousness of colour. It is remarkable that the violet end of the spectrum, on the other hand, is somewhat extended. Between the yellow and blue field he does not see any grey zone as other colour-blind persons have stated. As the most luminous part of the whole spectrum, when asked to indicate it, he did not name either the green or the blue but the yellow, thus agreeing with normal vision.

Leber has studied Hochecker's case, and made some interesting observations regarding it. According to him, the essential character of red-blindness, and of colour-blindness generally, does not consist in the entire or partial absence of any set of retinal elements, nor in the absence of any fundamental sensation, but rather in the *insensibility of one or several sets of nerves to waves of certain lengths.* If, for example, the red and green-perceiving elements are both insensible to red light, but almost normally sensitive to yellow light, it is perfectly intelligible that the maximum brightness should occur in the yellow, even in cases of blindness to red. This hypothesis also explains why the red-blind designate as yellow both yellow and green. If the red-perceiving elements were absent, they should call both green. The modifications of colour consequent on diminished illumination, which the normal eye observes, may also be explained by Leber's modification of Young's theory. In such circumstances, there can neither be an absence of any set of retinal elements, nor of a fundamental sensation, and still as the illumination becomes less and less intense the colour perceptibly changes. Red is the first to pass into a dusky or even a black tone, while blue and green still preserve their colour with the same amount of illumination. All the colours, however, as light becomes less intense, approach to grey, and in a certain faint degree of illumination they are distinguishable only as different degrees of light and shade. When the spectrum is seen with deficient illumination, the red and violet ends appear to be shortened. Here, apparently, the three different retinal elements are all insensible to faint light from the ends of the spectrum, but are about equally sensitive to faint light of intermediate refrangibility. Thus Hochecker's eye, in judging of colour under ordinary circumstances, resembles the normal eye judging of colour by twilight. To put the matter another way, it would seem that with diminished illumination the normal eye approaches to the condition of the colour-blind eye, until, in the same very faint light, they may both be regarded as quite colour-blind. Hochecker states that five members of his family are colour-blind to red. He founds on his own case an elaborate theory as to colour-perception, the consideration of which I must defer. JOHN G. MCKENDRICK.

Functions of the Optic Thalami.—Pathological observation, according to Dr. Crichton Browne (*West Riding Asylum Reports*, Vol. v.), affords considerable support to the doctrine which has been long entertained that the optic thalami are special sensory centres. Lesion of one of them gives rise to paralysis of the limbs on the opposite side, but less in degree than a lesion of the corpus striatum. With this motor paralysis there is marked impairment of sensation in the limbs, and pain is often a persistent symptom, sometimes referred to the head, sometimes to the limbs affected. In several cases narrated there was also persistent loss of reflex action in the paralysed limbs, while in one case of disease of the corpus striatum reflex action was not diminished. Hence it is inferred the spinal reflex action depends on the integrity of the optic thalamus. Dr. Browne believes that there is a cerebral reflex action synchronous with every spinal reflex action, and that the motor discharge of the latter may under normal circumstances only occur on reflex influence from the higher centre, and may not occur at all if the higher centre is destroyed. He points out that a higher reflex action does occur when a cry as well as a start is caused by a prick on the foot. In each reflex action the disengaged molecular motion is not wholly and solely discharged along the efferent nerves, but part at least passes upwards to higher centres, where further changes are set up, and Dr. Browne believes that he has noticed that the latter, as shown in the cry, may actually precede the reflex movement in the leg. This spinal action may thus, he thinks, be dependent on the reflex influence from the optic thalamus.

The Questioning Mania.—Under the name *Grübelsucht*, Griesinger, a few years ago, described three examples of a peculiar mental condition, characterised by continuous uncontrollable questionings as to the origin and causes of things great and small. Dr. Oscar Berger (*Archiv für Psychiatrie*, Bd. vi. Heft. 1.) describes two similar cases, and considers the symptom in detail. The condition has very distinct pathological relations, but does not seem to have been associated in any case with insanity. The sufferers were for the most part men in early adult life. In some cases other symptoms, indicative of irritable weakness of the nervous system, were present. The symptom was a transient one, and quite different from the habitual mode of thought. There was an incessant subtle questioning as to the grounds of all things, a continuous "why and wherefore" accompanying every idea, to the great annoyance of the sufferer. It was not quiet reflection, but a continuous irresistible pressure of thought, constantly seeking impossible answers, and ever recommencing, disturbing and even alarming the sufferer. "How is it that men are only of the size they are?" "Why are they not as large as houses?" "Why are there not two suns and two moons instead of one?" The same questions in new forms would occupy the sufferer for hours. In one case the first symptom was a kind of morbid precision, an impulse to secure, at any expense of time and trouble, an absolute accuracy in the most trivial things. The patient soon after began the questioning, and was speedily in a labyrinth of problems, the solution of which he felt compelled to attempt, although conscious of its impossibility. In the other case the condition was constantly present in slight degree, but was subject to paroxysmal exacerbations, in which the patient was conscious of a peculiar mental dualism or separation of his mental powers; one part rushing into all possible and impossible speculative regions, while the other, the temperate judgment, endeavoured to quell the excited questioning. The attacks lasted one or several hours. Other characteristics of this patient's permanent mental state were a peculiar realism, so that it was difficult for him to believe that that which he dreamed or read of was not fact, and a peculiar sensation of change in the relative proportions of himself and the objects by which he was surrounded. Dr. Berger assumes that a morbid state of the cerebral convolutions underlies this condition. He points out that the pathological phenomena have certain physiological analogues which are tolerably familiar.

Unilateral Phenomena of Mental and Nervous Disorders.—Isolated Sense-hallucinations are not uncommon in the insane. They occurred in 34 out of 250 insane patients examined by Dr. Alex. Robertson: in 31 the hallucination was auditory; gustatory in 2, olfactory in 1. Of the 31 cases in which hearing was involved, in 5 voices, &c. were heard only in the left ear; in 5 others, in the left more than the right; in 1 they were heard in the right ear only; in 2 more distinctly in that ear. The disorders of the other senses were bilateral. In most of the cases excess in alcohol was the cause of the insanity, and the form was mild. In cases recorded by Gall, Griesinger, and Van der Kolk, hallucinations were also on the left side. In none of these cases was there deafness of that ear. Sometimes, however, absolute deafness or blindness coexists with auditory or optical hallucinations. The morbid process, in most cases, is doubtless in the highest sensory centres, probably in the convolutions. In the unilateral phenomena, the centre of one side is involved, that of the other remaining free. This is explained on the supposition of some congenital or acquired weakness rendering that part especially susceptible to the morbid influence (in these cases) of alcohol. May not, it is asked, the morbid action set up here, spread over the whole of the mind-centres, just as in Ferrier's experiments the repeated irritation of a small portion of the cortical substance sometimes resulted in general convulsions? As the partial may merge into the general convulsion, as a limited neuralgia may irradiate along many sensory nerves, so the sensorial disturbance may become generalised and involve the mental powers. No explanation is attempted of the relative frequency of left-sided hallucinations. (*Glasgow Medical Journal*, Oct. 1875.)

W. R. Gowers.

Double Consciousness with Periodic Loss of Memory (*Amnesia*).—The *Revue Scientifique* (20th May, 1876) contains a long report by M. Azam, professor of surgery at Bordeaux, on a very remarkable case of periodic loss of memory and doubleness of mental life. Félida X., a hysterical subject, now 33 years old (married and engaged in business), began, about the age of 14½, to develop a peculiar secondary state of mind, between which and her original condition, varied occasionally by a third kind of state, her life has since been passed. The secondary state has recurred very irregularly and with varying duration. Wholly absent for two different periods of three years at a time (17½ to 20½, 24 to 27), after originally recurring at intervals of days and lasting for hours, it has in the last few years filled much the greatest part of the patient's life, and now gives place to the original or (as M. Azam calls it) normal condition only for a few hours at intervals of two or three months. The passage out of the normal into the secondary state used to occupy some minutes of unconscious sleep, following on violent pain of the temples, a like period of unconsciousness, followed by pain, marking the recovery of the original condition: now, when the secondary state has become the predominant one, the transition to the brief periods of "normal" mental life and back again is almost instantaneous. In the normal state the patient has always been quiescent and somewhat morose in disposition, being afflicted with the common symptoms of hysterical derangement —indefinite pains, disordered taste, touch, &c.; whereas, in the secondary state, she has always become bright, or even gay and affectionate, at the same time less industrious. But the most marked difference is that in the normal condition she has always retained no memory of the events of her life in the secondary state, while in the latter she has full memory of her life in both states. Her distress (in the normal state) on discovering that there have been blanks in her conscious experience is extreme, but the practical inconvenience from the want of memory, formerly great, has become less and less as the secondary state has gained in extent upon the other. However, if the distressing state of partial oblivion now recurs but at long intervals and for a very short time, the full consciousness of the secondary state remains quite different from the normal consciousness that used to predominate and was even exclusively present for the two periods of three years before mentioned. She has always regarded her state for the time being, whichever it was, as her proper and *rational* one, describing the other (indifferently which) as a morbid state of *crise.* The loss of memory, in the "normal" state, extends only to the events happening as conscious experience in the other; her general knowledge is not in the least affected, and she can do perfectly well everything she learnt in youth, or at other times in the normal state. Only on the rare occasions, when, in passing out of the secondary state, she has gone through a brief third state of extreme terror, have there been any traces of disordered knowledge.

The case, as M. Azam urges, differs in important respects from the other recorded instances of double consciousness. He would explain the loss of memory by supposing that there is a special localisation of the function, like that of language in the third frontal convolution of the brain, and that the supply of blood to the place becomes periodically affected in connection with the hysterical habit of the patient; in support of which position he refers at some length to the cases where sleep is induced by prolonged contraction of the muscles of the eye, resulting, as he argues, in modified brain-circulation. But if this be so, the state which he calls "normal" becomes clearly a morbid one (as might indeed be judged from the general hysterical symptoms), and his interpretation of the secondary state as one of *accés* is rendered doubtful. Elsewhere, in contending that the secondary state is the morbid one, he is disposed rather to make light of the want of memory in the "normal" state, as if it were due to some deficiency in the impressions received during the secondary periods. There is, of course, a third view possible, that both states are more or less morbid; and one would like to have details of the patient's early life, before either the hysterical symptoms or the alternative state were developed. It is merely said that her first years were "difficult," but the general development regular. M. Azam thinks it likely that at the next critical period of life the alternation of states will cease, and the secondary state already so predominant will prevail altogether. Meanwhile, he graphically says, it is a singular spectacle to see one like Félida "ignorant of all that has passed, all that she has seen or said, all that she has been told for three or four months before. She does not emerge from a dream, for a dream, however incoherent, is always something. She emerges from nothing. If . . . she had had no intellectual life the while, the break would matter little; but she has been perfectly intelligent, her acts have been rational all the time. . . . To compare her existence to a book from which some pages have been torn is not enough. An intelligent reader might fill in the blank, but she can have absolutely no notion of anything that has happened to her in her secondary state. . . . Suppose her husband or children have died; she will miss them and expect them back. A traveller absent for three or four months away from all communication, knows that time has passed: he may wonder what has happened in the interval, but he knows that things must have happened, and he waits to learn. Whereas, after four months of secondary state, Félida on one of her 'normal' days knows nothing of all the time that has elapsed: one hour or four months—it is all the same to her." EDITOR.

II.—PHILOSOPHICAL JOURNALS.

La Filosofia delle Scuole Italiane. Anno vii., Vol. xiii., Disp. 1, 2. Roma, 1876.

This is the only Italian review exclusively devoted to the cultivation of philosophy. Its first four volumes were published at Florence; its later volumes have issued from Rome. It appears every second month, and each number contains between 130 and 150 pages. Its editor, Count Mamiani, is the most celebrated of living Italian philosophers, and a man who has rendered great political and literary services to his country. His name will always be associated with the names of Rosmini and Gioberti, much in the same way as will that of Hegel with those of Fichte and Schelling. Almost every number of the review contains several articles from his pen. In Professors Bertini of Milan, Ferri of Rome, and Barzellotti of Florence he has found zealous fellow-workers. The name of the periodical indicates that it claims to be the organ of the national philosophy of Italy, and there can be no doubt that the principles which it advocates are those held by the immense majority of Italian thinkers. Some authors have denied that there is an Italian philosophy, and professed to be unable to see how what passes under that title differs from French eclecticism. But they have thereby only displayed their own want of discriminative power. All systems of idealism must, of course, have much in common, but he can be no competent critic who fails to perceive that the idealistic movement in Italy during the present century has had a continuity and progressiveness, an independence and distinctive-ness, of character which fully entitle it to be called national. Those who maintain its right to the designation fully acknowledge that the truths which philosophy seeks are eternal and universal and can belong exclusively to no land or age: they merely maintain that in the search for them the Italian mind has displayed a peculiar genius not less than the German or Scottish mind, which has given to its speculative systems a certain unity of method, doctrine and aim; and that Italians have no reason to be ashamed of what has been distinctive in their philosophical efforts and aspirations, and can only hope to reach truth by being true to themselves. There seems to be nothing extravagant in this; nothing which need give offence to the foreigner or which necessarily leads to native self-conceit; nothing which is inconsistent with the acceptance of light and help from any quarter. Any temptation which the philosophy of the Italian schools may have to exclude or underestimate the value of foreign thought is not, perhaps, likely to draw it far astray. It has a sufficient number of opponents in Italy to ensure the speedy detection and exposure of the aberrations and defects which would result from such a cause. It is most improbable that it will meet in Germany or France or England critics so hostile and depreciatory as it has already found at home in Franchi, Imbriani, Spaventa, Fiorentino, Mariano, &c. If its adherents and educated Italians in general are not fully aware of its weak points, the reason is certainly not any scarcity of persons in Italy itself most willing to point them out and prone even to exaggerate them.

Want of space prevents us doing more than briefly indicating the contents of the two numbers before us. We hope to be able to devote more attention to those which are to follow. In No. 1 Professor Ferri concludes the first part of "a psychological and historical study on Consciousness," the earlier sections of which appeared in Vol. xii., Disp. 3. He has now discussed the nature, forms, development and laws of consciousness in an able and comprehensive manner. Bonatelli continues his exposition and examination of Hartmann's *Philosophy of the Unconscious* begun in June, 1875, and not yet completed. The exposition is the fullest and clearest we have seen, and the critical observations interspersed are numerous and acute. Celli gives us a section of an extremely elaborate essay on "The doctrine of innate ideas according to Descartes, Locke and Leibniz," which was commenced in the first and continued in the third number of the previous volume, and is also still unfinished. Paoli reviews Ulrici's *Gott und die Natur;* Fontana, Labanca's *Dialettica* and Cantoni's *Corso elementare di filosofia;* and Mamiani, Schiff's *Fisica nella filosofia* and the first volume of Vera's *Philosophie de la Religion de Hegel traduite.* The *Revue Philosophique* and MIND receive a courteous and friendly welcome.

In the first article of No. 2 the editor publishes a third selection of fragments from the autobiography of a recently deceased mystical theologian of America, a Dr. Heverley of Charleston. In one of the fragments Dr. Heverley tells of hearing a Mr. Halifax, a favourite pupil of Sir W. Hamilton, give an account to a public audience at Boston of important unedited manuscripts of Dr. Thomas Reid lent to him by Sir William, with authority to expound them in the principal cities of England and America, but not to publish them. It is a strange story, which one would be glad to have either disproved or confirmed. If true, where are the manuscripts now? Professor Bertini contributes "New elucidations on the question of Ideas." Their aim is to show the insufficiency of the reasons adduced by Rosmini, Manzoni and Bulgarini in favour of the view that ideas have a purely mental existence. In a previous article (Vol. xi., Disp. 3) he endeavoured to prove that they have an objective validity in so far as the mind apprehends them in the Infinite Being. Mamiani commences a treatise on "Evolution," in which he proposes to examine the facts and generalisations of those evolutionists who profess to be guided exclusively by positive science. As he himself elaborated long ago a theory of evolution of a very comprehensive and ingenious character his remarks on the inductions and hypotheses of Spencer and Darwin can scarcely fail to be peculiarly interesting. The paper already published is chiefly intended to indicate the ambiguities latent in the general notion of evolution. Signor Dino treats of two excellent articles of Professor Cantoni on "Feeling," which appeared in Vol. viii., Disp. 2, and Vol. xi., Disp. 2, of the *F. d. S. I.* Wundt, *Ueber den Einfluss der Philosophie auf die Erfahrungswissenschaften* is reviewed by B. Labanca; Paoli, *La Coscienza secondo l'Antropologia del Rosmini*, by G. Fontana; and Mameli, *Della nozione sperimentale del Caso*, by L. Celli: all these reviews seem well done. There are also notices of the *Revue Philosophique*, *Critique Philosophique*, MIND, &c.

Giornale Napoletano di Filosofia e Lettere, diretto da Francesco Fiorentino, compilato dal Prof. C. M. Tallarigo. Anno ii., Vol. iii., Fasc. 1, 2. Napoli, 1876.

This periodical appears every second month and each number contains between 180 and 200 pages. Most of its contributors are connected with the University of Naples, the chief seat of Hegelianism in Italy. It is more, however, a literary than a philosophical journal, and Hegelianism can scarcely be said to be perceptible either in the matter or style even of its articles on philosophical subjects. These articles are, as a rule, not of a scientific but of a popular character, and generally also of a partially biographical nature. The writer of this notice has found specially instructive the papers of Fiorentino on the philosophy and the philosophy of history of Petrarca (Vol. i., Fas. 2, Vol. ii., Fas. 4), and those of Pierantoni on Albericus Gentilis (Vol. ii., Fas. 5, 6). There is a division in the camp of Italian Hegelians as to the position and worth of the native philosophy of Italy. While Vera and his personal disciples, as, *e.g.*, Mariano, treat it with contempt as a loose succession of feeble essays tending definitely nowhither, Spaventa and his friends, among whom are the chief contributors to the *Giornale*

Napoletano, concede to it great merits and contend that it leads up, and links on, to Hegelianism. It is natural that Fiorentino should belong to this latter party, as he was for a time a follower of Gioberti; and, in fact, it is chiefly by his researches into the history of Italian speculation in the 16th and 17th centuries that he has distinguished himself. His *Peter Pomponatius; Historical Studies on the Schools of Bologna and Padua in the* 16*th century* (1868), and *B. Telesius: Historical Studies on the Idea of Nature in the Italian Renaissance* (1872-74), are admirable books.

The second of the two numbers of the *G. N.* at present before us contains nothing which it would be appropriate to notice here. In the first there is an article on "Free Will," and another on "Positivism and Idealism." The former is a lecture delivered in the University of Naples by Prof. Passina, at the opening of his course on penal law. Holding that legislation and responsibility presuppose free-will he combats as incompatible with it, first, Greek fatalism, second, the theological necessitarianism resulting from belief in absolute predestination and irresistible grace, third, the determinism of Spinoza due to the conception of the absolute unity and identity of substance, and fourth, the physiological and psychological determinism of the philosophers of the 19th century. Naturally it is the last of these forms of necessitarian doctrine which receives most of his attention. The article on "Positivism and Idealism" by Prof. Fiorentino is his inaugural discourse at the University of Pisa. The course of thought in it runs thus:—There is an alternation of fashions in men's speculations, and positivism is predominant at present because idealism was so not long ago; the positivism of Comte, corrected and developed by J. S. Mill, contains nothing really original, but finds a relative justification in the excesses of the idealism which it combats; essentially, however, it is a philosophy of which the last word is not reason but chance; idealism has been unjust to facts, positivism is unjust to ideas, and a monistic system is required comprehensive enough to include all the truth of both, while excluding their errors; a chief obstacle in the way of building up such a system is the difficulty of historical, as compared with merely physical, induction; this difficulty can only be overcome by the methodical investigation and comparison of subjective or psychological processes and objective or social facts. The remarks on the difficulty of historical induction are excellently put.

Zeitschrift für Philosophie und philosophische Kritik. Bd. 68. Hft. 1. Halle, 1876.

This number of the *Z. f. Ph.* will be noticed by us much more briefly than its predecessors, not because it is inferior to them but because the two articles which it contains are both second parts of essays the general scope and character of which we have already indicated (see MIND, No. II. pp. 273-4). Dr. F. Steffens continues to show "What gain to the knowledge of the history of Greek philosophy from Thales to Plato may be derived from the writings of Aristotle" by reconstructing that history entirely out of the materials furnished by Aristotle. The collection of Aristotelian proof-passages promises to be nearly complete and the interpretations given seem natural and unstrained. Dr. Hoffmann, treating of "Anti-materialism," continues to criticise Büchner's *Aus Natur und Wissenschaft*,—the three new chapters added to its thirteenth edition being those which are on this occasion assailed. Dr. Büchner, according to his critic, has shrunk from grappling with all recent refutations of materialism of real importance and measured his strength only with weak opponents. Under the heading of "Recent writings on the Philosophy of Kant," Dr. Sengler reviews Hölder's *Exposition of the Kantian Theory of Knowledge*, Witte's *Contributions towards the understanding of Kant*, and Stadler's *Teleology of Kant.* He considers them as important productions which supplement one another, Hölder throwing considerable light on the character of the criticism of pure reason, Witte on the doctrine of the practical reason, and Stadler on the fundamental principles of the criticism of the faculty of judgment. Dr. B. Erdmann reviews Dr. E. v. Hartmann's *Critical Foundation of Transcendental Idealism*, which is just a second edition of his treatise on *The Thing-in-itself and its Nature.* Hartmann endeavours by determining the relation of thought and being to refute transcendental idealism and to establish a transcendental realism. His reviewer examines his arguments and finds them insufficient either to prove the existence or determine the nature of the *Ding an sich.* He challenges also the accuracy of Dr. Hartmann's statements as to the views of Leibniz, Berkeley, and Hume, on the objective validity of knowledge. Dr. Ulrici passes judgment on three works. (1.) The *Metaphysical Researches* of Prof. Kym of Zürich, one of the ablest of Trendelenburg's disciples. While praising the work he combats the mechanical conception which it gives of nature and thought. (2.) The second volume of the German translation of the *History of Philosophy* by G. H. Lewes. Dr. Ulrici's aversion to the positivist principles of Mr. Lewes prevents his doing justice to his ability. (3.) Turbiglio's *B. Spinoza e le Transformazioni del suo Pensiero.* Dr. Stumpf eulogises a book *On the Origin of Language* recently published by Dr. A. Marty of Würzburg, as combining in an eminent degree scientific knowledge and philosophical talent.

Philosophische Monatshefte. Bd. xii. Hfte. 2, 3. Leipzig, 1876.

The first article in the first of these numbers is meant by its author, Dr. Spir, to shed light on the search for ultimate principles. It at the same time supplements an article which he published in Bd. xi. Hft. 6, under the designation of a "Contribution towards perpetual peace in philosophy." He there argued that if philosophers could be once got unanimously to assent to any first principle there was a likelihood of their coming to a unanimous settlement of all their more important disputes; that the root of their differences lay in this, that while some held knowledge to be wholly derived from experience, others maintained that there were elements of knowledge independent of experience; that if the former could prove what they believed they would bring about a perpetual peace by showing that philosophy was simply experiential or positive science; that the entire nature and history of philosophy, however, protested against this answer; that experience itself proved the contrary to be true, because no single datum or object of experience conformed to the principle of Identity, all being subject to change, and change being exclusive of identity; yet that the principle of Identity was no mere tautological phrase, but a true and positive expression of the essence of things; that it was consequently an original *à priori* law of thought; and that this fact was rich in important inferences. He begins his present paper with the admission that the former one seemed to have altogether failed to accomplish the end for which it was written. This is the reason why he tries again. He boldly starts with the *Ding an sich*, "the thing in its own inner nature." There can be no doubt, he says, of its existence. The only question is, Does experience show us the proper essence or inner nature of things? Are the objects of experience things-in-themselves, or do things-in-themselves lie beyond experience? All philosophy depends, according to Dr. Spir, on the answer which is given to this question. If things-in-themselves can be known through experience, philosophy must be merely a systematisation of the sciences of experience, or, in other words, a kind of positivism. But the whole movement of philosophy shows that this answer is not to be returned without serious investigation. To test it we must raise the question, Is there a law of thought which compels us to conceive of the nature of things otherwise than as experience presents them to us? The essayist argues that our knowledge of bodies shows that there is such a law. In experience bodies are apprehended only as combining diverse qualities; in themselves they are necessarily thought of as absolutely identical. It is as impossible for a thing-in-itself to be at once green and sour as to be both white and black. There is a law then, of which the proper expression is that "the nature of the thing-in-itself is identical with itself," or that "in its own nature every object is identical with itself;" and this law cannot be derived from experience, as the universal mark of empirical objects is the combination of differences under certain conditions. Thus experience indirectly confirms the apriority and objective validity of the law of thought indicated, and from it the principle of Causality and other principles may be deduced.

Dr. Weiss criticises the article of Herr Knauer which appeared in Bd. xi. Hft. 10, and lays down and defends eight theses intended to prove that the Atom is no myth. He does not share Dr. Spir's belief in a bodily *Ding an sich*, for one of his theses is that "matter without properties is a nonentity." There is nothing, perhaps, in the article not already stated by himself more fully in his well-known *Antimaterialismus*. Prof. Krähenbühl, of Lucerne, writes on "The Unity of Consciousness with reference to the Psychology of Brentano." He begins by stating that the unity of consciousness does not exclude complexity of organisation, powers, and functions, while it is, at the same time, neither a mere collective unity, as the army is a collection of soldiers or the body a collection of cells, nor a mere resultant unity due to the co-operative or antagonistic action of a variety of forces. It lies in the reference of all the acts and states, faculties and passions, of the individual man to a single centre, the one self-conscious ego. This unity of consciousness, according to Prof. K., is a peculiar fact, which cannot be properly illustrated by physical analogies, but can only be understood through the study of consciousness itself. He admits that some psychical states are not so closely connected with consciousness as others, and endeavours to confirm the argumentation by which Brentano attempts to refute the objection to the unity of consciousness raised by Ludwig on this foundation. He denies that the unity of consciousness implies that the soul constantly and as to all its acts exercises its unifying power, yet regards it as the chief error of Brentano that he concedes that there is no direct and immediate evidence for this unity beyond what is contained in the psychical states present in consciousness at a given moment. Unless the unity of consciousness extends beyond the present all perception and knowledge, he argues, are impossible. Apparently, the view of Prof. K. is just that held by Reid and opposed by Hamilton,—that memory is an immediate knowledge of the past. The next article is a reply of Horwicz to some criticisms of Volkelt on the second part of his *Psychological Analyses.* It is rather of personal than of scientific interest. Dr. Vaihinger next gives us an instructive paper on "The origin of the word *Erkenntnisstheorie.*" He has not been able to trace it farther back than to 1832, when it frequently occurs in a work of E. Reinhold. It has only become widely current since its employment, in 1862, by E. Zeller, in his lecture *Ueber Aufgabe und Bedeutung der Erkenntniss-Theorie.* The reason why it has taken the place of the older term, *Erkenntnisslehre* is that it has convenient derivatives, *e. g.*, *erkenntnisstheoretisch* and *Erkenntnisstheoretiker*, whereas *Erkenntnisslehre* yields neither an appropriate adjective nor substantive.

A lecture of Dr. Kirchmann on "The Significance of Philosophy" stands at the commencement of No. 3. He defines philosophy as "the science of the ultimate notions and laws of knowing and being;" indicates the characteristics which distinguish it from the special sciences; dwells on its uses, and briefly considers the two questions, How shall philosophy be studied? and How may one become a philosopher? The second article in the same number is a "Psychologico-metaphysical analysis of the fundamental Laws of Thought," by Prof. v. Struve, of Warsaw. He accepts as the fundamental laws of thought the principles of Identity, Contradiction, Excluded Middle, and Sufficient Reason. In the first part of his essay he seeks the psychological explanation of these laws, and seems to himself to find that the first is the generalised abstract expression for the concrete fact of the identity of consciousness; that the second is drawn from the distinction between the permanent and the variable in consciousness; that the third results from the impossibility of apprehending change or diversity in existence entirely apart from permanence and identity; and that the fourth is based on the consciousness of the inner connection between subject and object in perception. The second part of his essay gives a sketch of the metaphysical system which he would construct on these foundations. It is full of ingenious and independent views, stated almost as briefly as consists with intelligibility, so that to summarise them is out of the question. The essay is one which well merits careful study. It is, perhaps, unnecessary to say that the bibliographical department of the *P. M.* is as admirably conducted as ever. R. FLINT.

Revue Philosophique de la France et de l'Etranger. Dirigée par TH. RIBOT. Première Année. Numeros IV.—VI. Paris, 1876.

The most striking article in the April number of this review is from the pen of M. Léon Dumont, on Habit. The writer seeks to give to the idea of habit the most extensive signification, regarding it as a universal fact both of the organic and of the inorganic world. He finds its simplest illustration in the form of movements preserved by the constituent elements of an inanimate body under certain environing influences, and he traces its influence in the highest domain of intelligent volition. "Habit is, in a force, its manner of reacting on other forces, which manner itself results from the action which the other forces have previously effected on this one." In the same number M. Vacherot finishes his account of the antecedents of the Critical Philosophy; and M. L. Liard makes a creditable attempt to retain a place for the notions of Species and Genus in natural science, by regarding them at bottom as a system of laws of coexistence of a greater and greater degree of generality, though owing to the inexactness of our knowledge of their laws, we are unable to replace the image of the external form or the type by a formula.

In the May number M. Bouillier, who has himself written on Pleasure and Pain, has some pertinent criticisms on M. Dumont's new volume on this subject. After the first part of a clear *résumé* of Lange's *Geschichte des Materialismus*, by M. J. Soury, there follows a curious article on the Theory of the Syllogism, by M. J. Lachelier, in which it is maintained that mediate inference does not, as is commonly supposed, rest on immediate inference, but that every case of the latter is really a disguised syllogism. When, for example, we convert simply the particular affirmative, Some A is B into Some B is A, the real process is Datisi in the third figure,—thus: All A is A, some A is B; therefore some B is A. An article of some length on the Development of Volition, by Herr A. Horwicz, the author of the excellent *Psychologische Analysen*, is rather disappointing. The lowest stage of will is said to be appetite, which is defined as "a feeling (sentiment) associated with recollection." No attention is given to the apparently instinctive element in conscious action, and thus one of the main problems in the evolution of will in the race is untouched. Some of the writer's statements, moreover, seem to be at least doubtful, for example that wish and desire invariably have a recollection of pleasure as their starting-point. May one not desire simple relief from a present pain?

In the last issue of the *Revue* we have an article by E. von Hartmann on Schopenhauer and his disciple Frauenstädt, a short paper on Cerebral Localisation, by Dr. R. Lépine, a translation of two recent articles on Spiritualism and Materialism by Mr. G. H. Lewes, and a study of the Sources of Indian Philosophy by M. P. Regnaud. The first of these is likely to attract most notice among English readers, and is indeed not a little interesting. The writer twits Frauenstädt with his personal veneration for his master, owing to which he fails to see the inconsistencies and inadequateness of the latter's system. The article is very characteristic, especially in the policy of the endeavour to separate *Die Philosophie des Unbewussten* as far as possible from *Die Welt als Wille und Vorstellung*.

JAMES SULLY.

X.—NOTES.

Logical Contraposition and Conversion.—On page 148 of MIND, the Editor proposes to resolve the inference,

All S is P,
∴ No not-P is S,

into two steps, thus,

All S is P,
∴ No S is not-P,
∴ No not-P is S.

To this I object on the ground that both steps of the latter process depend on a property of the negative which is not essential to the validity of the inference proposed to be resolved. In the universal negative proposition, *homo non est animal*, the *non* qualifies the copula. The meaning of this qualification must, however, be defined to be such that the proposition is equivalent to *homo est non animal*, taken in such a sense that the existence of a man is not asserted. We may, therefore, substitute for the forms of inference in question,

All S is P,
∴ All not-P is not-S;

and

All S is P,
∴ All S is not-not-P,
∴ All not-P is not-S.

The word *not* here has two properties. The first is that it is a relative term. To say that an animal is not a plant, is to say that it is *other than* every plant, just as we might say that it was *superior to* every plant. The second property is that the relative term *not*, like *cousin of*, *similar to*, etc. is its own converse. Now the first inference does not depend on this second property since it is of a form which holds good for all relative terms whatever. Thus we may reason,

All negroes are men,
∴ Every lover of all men is a lover of all negroes.

On the other hand both of the steps of the proposed resolution do depend on the convertible character of negation. C. S. PEIRCE.

[Mr. Peirce gets the contrapositive of All S is P without the double process of obversion and conversion, but does not, as far as I can see, impugn the validity of the double process. What he asserts I am far from denying, though I doubt whether his mode of treating the proposition is one that would in all cases be easily applied. The double process is always perfectly sure and simple. To obvert a proposition is to express it as negative if it is affirmative, as affirmative if it is negative: convert it in this obverse form, and then you have its contrapositive. It is interesting to note the consequence as regards the four typical propositions known to logicians as *A*, *E*, *I*, *O*. As every tyro knows, *A* is degraded in quantity when converted as it stands, and *O* cannot be converted at all; *E* and *I* alone get full justice in conversion. The scale is exactly redressed in contraposition: *E* becomes degraded in quantity, when converted in the obverse form, and *I* cannot be contraposed at all; on the contrary, *A* and *O* get full justice.

Mr. Peirce's objection, if objection it should be called, seems to be sufficiently met by saying that, since the word *not*, treated as a relative term, is its own correlative, one is at liberty to take account of that fact in dealing with the logic of affirmation and negation. The case would be different if one were setting up a logic of relation in general.

I would add that the scheme of associated theorems put forth in the new *Syllabus of Plane Geometry* (see MIND, I., p. 147) is to be found substantially in M. J. Delboeuf's remarkable work, *Prolégomènes Philosophiques de la Géométrie* (Liége, 1860) p. 88, and is there referred back to a work by Hauber, published in 1829. For the words *converse* and *obverse* as used with a special meaning in the *Syllabus*, M. Delboeuf says *inverse* and *reciprocal*—words which are far better as avoiding all confusion with the fixed sense of logical nomenclature.—EDITOR.]

The Uniformity of Nature.—Mr. Lewes's restatement of his position on this point, ingeniously put as it is, fails to convince me. I still find no real coherence between the links of the proffered argument, and I can only take refuge in the puzzled exclamation of Dionysus in the *Frogs* :—

εὖ νὴ τὸν Ἑρμῆν. ὅ τι λέγεις δ' οὐ μανθάνω.

That which is, is; and That which will be, will be—these I do freely admit to be self-evident and identical propositions; but they seem also, like all other identical propositions I know of, to be hopelessly barren of real inference. Mr. Lewes professes, in some way which I confess myself unable to seize, to weld the two identical assertions into the distinct and perfectly real assertion, That which is will be, or, That which has been will be.

To the objection that, for aught we know, Time and Space may themselves be among the conditions, Mr. Lewes answers that Time and Space are abstractions. Let us then, instead of talking of Time and Space in general, speak more particularly. Suppose A, B and C to be similar sets of conditions repeated at different times and places: surely it is a specific fact, and not an abstraction, that A happens elsewhere than B, or before or after C; nor does it appear to me at all self-evident that neither of those facts can make any difference. And I cannot quite see where Mr. Lewes would draw the line of self-evidence. Is it inconceivable, for example, that there should be a secular variation—in other words, a variation depending on time alone as a condition—in the law of gravity? So far as I can trust my own feelings it is to me perfectly conceivable; indeed I do not see how we can ever be assured that there is not, in fact, some such variation. We can only know that there is no sensible variation within the range of human experience as at present ascertained. Again, if a minute periodic variation is conceivable, why not a minute variation in time without a period, or even a variation in time which is neither periodic nor minute? For my own part I can give no reason whatever. So again of space: is it impossible to conceive a minute variation in the law of gravity depending on pure space-relations or on the constitution of space? Assuming, for example, that in homaloid space the law of the inverse square is exactly true, might it not, in space of a different kind, be the inverse square *plus* some other small term having a constant relation to the curvature? Or, without going into these speculations, can we not conceive that there is in space as we know it a minute additional term which is some function of the distance from an assignable point—say the centre of gravity of our celestial system? Here, too, it seems to me not only that we can conceive the thing, but that we cannot know it to be otherwise. But I fear we are not likely to arrive at any present settlement.

FREDERICK POLLOCK.

The Postulates of Experience.—In the question at issue between Mr. Lewes and Professor Bain, Time and Space, it appears to me, are clearly not *in themselves* conditions that can be taken into account. Time simply means all the conditions viewed as successive. But the conditions, to which an ascertained law of nature applies, are *already successive.* The course of nature is a process in time, and that process consists of uniform co-existences and sequences, which are capable of being observed and registered, only because they are uniform; since to observe means to classify. For experience to be possible at all, there must be groups of similar and dissimilar phenomena following one another according to a given uniform order. This sequence of phenomena we call Time, and the co-existence of phenomena—at all events in the external order—implies Space. That the boiling point of water under the ordinary atmospheric pressure is 212° F., is a general proposition involving both time and space—expresses the result of repeated observations made at different times and in different places. The statement of a law of nature, *ipso facto*, essentially involves the conditions of time and space. It is under condition of difference in time and space that a law of nature is ascertained to be true—therefore, evidently, the difference in time and space cannot suffice to make the same law untrue. Professor Bain says there is no contradiction in supposing that a million years hence the boiling point of water at the ordinary pressure may be raised to 250°. But what *are* a million years *apart from* the uniform succession of more or less similar phenomena, which we mean by a year multiplied a million times? Nothing whatsoever. Therefore, of course, a million years, the other conditions remaining unchanged, can make no difference in any ascertained law or phenomenon. If during two years a law remains constant — the successive phenomena that enter into the idea of two years themselves constituting the law—it will remain constant for a million years, if the successive phenomena concerned in it remain equally unchanged. It will not be the succession of them that will change the law, seeing the succession, on the contrary, helps to constitute the law. If a million years hence the boiling point of water under ordinary pressure be raised to 250°, then clearly the physical conditions will have been changed. The water will no longer be the same, or some new element will have essentially altered the phenomena observed, which of course may make the boiling point different; but no law of nature will be changed; all will be uniform as before. And again, if the physical conditions are the same in London and at Pekin, how should the phenomenon vary? Difference of place already enters into the idea and statement of the law; it, therefore, abstractedly by itself, cannot make the law vary. The boiling point on a mountain top varies from that on a plain—therefore it may vary from that in Sirius—but in either case it must be because the physical conditions vary. And we are so constituted as to postulate a sufficient reason for whatsoever happens, *i.e.*, begins, continues and ends. We assume that there is an adequate cause or reason for all that happens, though we may not understand at all fully what the reason is. There is a sufficient reason for the boiling point of water under certain conditions (we cannot help assuming) being 212°, and nothing but that. The conditions themselves must alter before the law can alter; for the law is constituted by the varying and yet uniform conditions—it expresses their uniform *relation* to one another in time and space, which relation is of their very essence, part and parcel of a Natural Order.

The causes remaining as they are, the effect cannot vary, and an ascertained law implies a constant cause. But the postulate of the Uniformity of Nature surely implies rather more than Mr. Lewes allows for. It implies an expectation that the order of Nature will proceed uniformly in the sense of continuously—with no violent leaps, no chasms in experience. This no doubt has been our past experience, and that of the race. But experience, and the process of Nature, proceeding *pari passu*, are so and no otherwise for a sufficient reason. This is the essential order of things. Only, expectation of this kind of uniformity, this continuity of conditions, this gradual development, is subject to variety of degrees according to past experience. Thus there have been cataclysms and even apparently miraculous phenomena. There is Birth and Death also. Nevertheless, if the very truth and reality of phenomena be in their universal relation, in their passing over into one another, we *must* think Nature as uniform, as a system of identity amid differences. Forces are "correlated," and Energy "persists." In evolution the implicit becomes explicit. The whole Being in each part urges on the parts into their different modes of manifestation, in order to organise Itself completely. Prof. Bain says, "we simply risk the future being like the past." But in fact we risk it, *because it is, and must be so*—because Nature and Thought being correlative are so constituted. No other explanation can be given—none has been given by the non-intuitional school—of our "risking" it. We have confidence in the permanence of Natural Law because we ourselves are part and parcel of the constitution and course of Nature. Indeed, to scientific materialistic idealists of the modern school like Hume, Mill, Mr. Hodgson, (and I suppose Mr. Bain), Memory and the Past are not a bit more really explicable than the Future: an established law even with respect to the past is perfectly unintelligible on their theory of all being a succession of feelings and sensations; because without some focus of unity wherein these successive feelings may be concentrated and compared, no expression of a general law applicable to many similar instances is possible —nay, not the most vulgar experience is possible, for that involves memory, and *organisation* of sensations. There is besides a perception of external fact—(I grant, fact relative to human intelligence)—which they cannot explain. But they cannot even logically pass the boundaries of their own truncated personalities—truncated because logically cut off from alien personalities, which are needed to supplement them. They cannot logically believe that *what has been has been*, because the knowledge of time involves the summoning of past feelings or ideas together with present before the same tribunal of personal identity, or in order that they may be judged to be past—to have been in the same consciousness before. Such a process to a mere succession of feelings (as Mr. Green has exhaustively shown) is impossible. The feelings must be held firm as my feelings, as belonging to me, who am the same now as I was then—though, so far as the change of feelings go, not the same. This only can give the idea of time—which is an idea of identity amid difference. But if the non-intuitional school can logically believe in laws of Nature applicable to the Past, they may be just as certain that these laws are applicable to the Future. Some would say that personal identity suffices to give assurance of future as well as past uniformity in Nature. The essential unity of consciousness, its essential nature as a process in time, as identity manifest in successive differences, seems quite sufficient to give assurance of such uniformity, so far as phenomena are concerned, "laws of nature" being the universal or general moulds in which Nature appears to us. But if we have intuition (as I believe) that Nature is verily external to us, then we also know that Nature itself, *so far as it is related to us*, has verily these general laws, or modes of manifestation and existence. Nature's identity is in correspondence with our own, and they proceed *pari passu.* The fact of this close correspondence of subject and object involves however their essential identity, which becomes still more manifest if we examine the Mind and Nature in detail: still Nature is Mind in external representation, or symbol; Mind is Nature become conscious of itself: the one could not be without the other. Into this, however, we cannot here enter fully.

RODEN NOEL.

The Gratification derived from the Infliction of Pain.—The question (see Mr. Sully's Note, MIND, II. p. 285) of the relationship of the malevolent sentiment to the sentiment of power, in the final analysis, is an exceedingly subtle point; indeed it may be said to carry with it the ultimate resolution of all the chief emotions of the mind.

In the first edition of *The Emotions and the Will*, I gave as the analysis of anger—the feeling of power, the riddance from fear, and the sensuality of inflicting pain. I had discussed the whole matter with Mr. Mill, and he concurred in the analysis.

Of the three constituents assigned, the most apparent and indubitable is the second—the deliverance from fear. The disabling of an adversary is necessarily attended with an agreeable rebound, proportioned to the depths of the possible danger as we apprehend it. To kill him that otherwise would have killed us must needs occasion a burst of exultation and joy.

The third constituent—the sensuality of inflicting pain—is very hard to define. There seems to be some connection between painful inflictions and the sexual excitement, which, if we could establish and estimate it, might help us out of the difficulty of finding an adequate source of the pleasure of malevolence.

The first named ingredient—the pleasure of power—would contribute its share to the analysis, if we could be sure that the sweetness of power is a fact independent of malevolence. But this is the very thing that I have seen reason to doubt. As I survey the various modes of the exercise of power, I am struck with the undoubted presence of an element of malevolence where the gratification is at its highest. Minds that have much sympathy and little antipathy do not desire power: or if they do desire it, it is avowedly to counterwork maleficent agency. The general rule being that the best you can do for human beings is to avoid coercing them, the excessive desire of power is generally for the sake of harm whatever may be the professed intention.

In the analysis of power itself, we must make full allowance for the obtaining of sense-gratifications and sense-exemptions, together with the pleasures of love and affection. Power is, in this aspect, to a great degree identified with property or possessions. Now, according as we desire all these things, we desire the means of obtaining them. In the early stages of animal and human life, such benefits could not be procured without first wading through slaughter, and hence the plausibility of the supposition that the delight in slaughter and in all its associations is due solely to its instrumentality in procuring the final ends of existence at that stage. The idea is that having once learned the delights of blood, when it was a means to the other or the more primary ends, we keep it up as an addition to our pleasures when it ceases to have the same importance. One would think, however, that such a horrible delight would be abandoned, in the face of the strong feelings that incline to amity, pity and the social feelings, when it was no longer a sad necessity. The alteration of the circumstances should have altered the case. But maleficent pleasure, although very much transformed in its workings, is still as strong as ever. We seem to feel that it is an end in itself; our consciousness cannot detect any latent reference to a deeper end. No doubt, any one may say that the original end has been effaced from our recollection. This, however, is a pure assumption; we can neither affirm nor deny it upon any evidence except analogy; and the analogies are scarcely strong enough to support it.

To come back for a moment to the deliverance from fear. The employing of this explanation would suppose that we can distinctly assign the evolution of fear itself. But in this we assume too much. No evolutionist has done anything for fear. Taking for granted a general susceptibility to fear, Evolution accounts for the special growths connected with it: the instinctive dread of animals towards their hereditary enemies, and the dread inspired in the human infant by the frown. But regarding the general susceptibility, of which these are merely specific directions, there is no explanation whatsoever. For my own part, I have been content to regard it as a primary fact coeval with the sense-susceptibilities themselves, or rather with these at certain not very high stages of intellectual development. It is a weakness of the system superadded to the proper feelings of pain, which are not necessarily accompanied with fear. As it exaggerates the pains themselves, when viewed in the distance, so it exaggerates the deliverance from them. It widens the interval that separates the lowest depths of privation and misery from the greatest heights of pleasurable exaltation. All this is favourable to the growth of associations with all the circumstances of relief from the greatest of all dangers in the struggle for existence—the being vanquished by the power of the stronger. But whether such associations would amount to the plenitude of the sweets of malevolence, no one is competent to say.

Mr. Sully makes the weakening of a dangerous adversary the first generating source of the pleasure of anger, and the sentiment of power as superiority the second. I doubt, however, whether the second be really a distinct fact. Superiority seems to owe its essential charm to perfect immunity from harm; if it means anything farther, it must be the disinterested passion for inflicting harm, which is the thing to be explained. Superiority, after all, is a means to other ends; it may imply simply the greater share of life's good things and of immunity from its bad things, apart from malevolent infliction pure and simple; or it may take this in along with the others. I cannot help thinking that when the pleasure is at its maximum pure malevolence enters as a part.

I repeat that, as a fact, the infliction of bodily pain on another personality appears to re-act upon the sexual appetite, and may thus derive some portion of its horrible fascination. Why this should be, upon Evolution or any other hypothesis, I do not venture to say. It is doubtless in the interest of sexual gratification that animals make a large number of their victims, so that the spilling of blood might contract special associations with this most furious of natural appetites.

A. Bain.

X.—CORRESPONDENCE.

The Automatic Theory of Animal Activity.

In almost every physiological work I have yet read, the word *automaton* has been found to be employed in a very loose and self-contradictory sense. Sometimes it is used as the exact equivalent of the term *machine* (in its ordinary and popular signification), at others, as equivalent to a machine *plus* consciousness. In his well-known work *Mental Physiology*, for example, Dr. Carpenter employs the word now in the one sense now in the other. Not unfrequently he speaks of actions *originating* in Feeling, with something even of Intelligence and Will, but becoming in course of time purely automatic or mechanical. Now, is not this hovering between two such widely different meanings altogether unjustifiable? An automaton must be either a machine devoid of consciousness, or it must be a body whose actions are determined by feeling: it cannot be both. Nor can I see how actions that require feeling to start them should ever come to be performed entirely *without* feeling — how an organism which responds to stimuli purely in virtue of its sensibility, should ever come to respond to the self-same stimuli in the utter absence of sensibility. That actions, at first performed with difficulty, should by-and-by be done easily, is conceivable enough and verifiable any day or hour. That feelings which at first spread beyond their own peculiar nervous centres of activity, forming for a time (longer or shorter) other and more complex combinations, should at length subside into a sphere of purely local activity, doing their own special work in their own particular way, and should henceforth only manifest their existence to the rest of the living frame as part of the general stream of consciousness,—this also seems perfectly reasonable, and is, I think, the theory which a comprehensive philosophy would offer with the fullest confidence, as explaining all the facts of all the cases ever yet adduced. But that a sensitive organism, acting only *because* of its sensitiveness, should ever become transformed into a mere machine, seems to me an impossible conception. For surely feeling is a thing or fact *sui generis;* if it is not a positive quantity, it is at least a positive quality, and that is quite the same thing so far as this argument is concerned. The question therefore is: In the passage from sensational activity to action purely mechanical *where has the feeling gone?* Philosophy has a right to ask this of Physiology, because to expect to see actions which owe their origin only to feeling performed in the entire absence of feeling, is simply to look for an effect in the absence of its cause. And it will not do to reply, as Dr. Carpenter does, that the attention is otherwise engaged; for attention is not simple feeling but an operation on feeling, feeling reflected on, distinguished from that confused mass of other feelings which are always more or less vividly present. And not Dr. Carpenter only, but nine-tenths of physiologists in general, seem to hold that, in the case of automatic actions, not attention merely —the brain consciousness, but simple feeling—the organic consciousness, is totally wanting. They even speak of reflex *feelings* subsisting *in the absence of sensation!*

The inconsistencies into which physiologists and psychologists, who have equally hazy ideas on this subject, are led by this contradictory use of the words automaton and automatic are many and glaring. Dr. Carpenter, for instance (*Mental Physiology*, p. 58), admits the facts involved in Sir John Lubbock's successful attempt to train a wasp, yet goes on talking all the same of insects being mere automata. Now, if the wasp had lost all feeling, and become a pure machine, it is absurd to speak of a successful attempt to *train* it. Think of an attempt to train a steam-engine! Yet why not, on Dr. Carpenter's grounds? And if it *had* feeling, and had had it throughout, it could never have been, or become, a mere machine. It seems clear, therefore, that Dr. Carpenter ought either to dispute Sir John Lubbock's alleged facts, or at once give up his notion of the possibility of insects ever becoming mere pieces of ingenious mechanism. To admit that the wasp's actions were the result of education, and then straightway to speak of them as the actions of a pure machine, is self-contradictory in the extreme. It is impossible to maintain a position of the kind without setting at defiance all known laws of causality, and all the facts of personal experience. Judging from the analogies furnished by our own consciousness, the ultimate test in this, as in every other case, we would say that the humblest training process demands, in the object of it, Sensibility, something akin to Intelligence, and the rudiments at least of a Will.

As an example of purely *reflex* (by which he means purely *mechanical*) action, Dr. Carpenter (*Ment. Phys.*, p. 73) mentions the case of infants who have been born alive without any brain, "and have lived and breathed for some hours, crying, and even sucking, though they had no nerve-centres above the medulla oblongata." If such animals, he goes on to say, "have any consciousness at all, it can be of no higher kind than that sense of need which we ourselves experience when we hold our breath for a short time," &c. A noteworthy admission: for who ever dreams of a pure machine feeling a *sense of need?* If a brainless animal *has* such a sense of need it can be no mere machine, it must be *a sensitive organism*, however humble its feelings and simple its possible activities. Moreover, does not a sense of need involve a *straining after* that need's supply, and, however vague that straining, must it not be called a rudimentary will, involving even Intention, however ill-defined? And how, one may ask, could the straining, in such a case as the above, be other than vague, and the intention other than ill-defined, when the animal has lost almost all the vehicles of that knowledge which alone can transform vagueness into distinctness, and ill-definedness into clear vision? Eyes are gone, ears are gone, organs of smell are gone, any little thought-power that ever belonged to the animal is gone: what could be expected to survive except a mere sense of need? But if that sense of need does survive, then the machine theory of animal activity falls to pieces. And if Dr. Carpenter is as sure of the soundness of his automatic doctrine as the prominence he gives it in this volume demands that he should be, why does he grant even the possibility of an animal *minus* a brain having feeling at all—not to say such feeling as a sense of need, which (twist the phrase as one may) does imply somewhat of Intelligence and Will? Why also does he use so frequently, all through his work, the words "as it were," when speaking of apparently mechanical or automatic movements in animals? Full assurance does not deal in such doubtful phraseology.

In these remarks I desire to be understood as using the word "machine" in the ordinary sense, as a thing entirely without consciousness of its own activities, because it is in this sense that the word is employed by all those physiologists and psychologists who set such store by so-called automatic actions and reflex feelings. My own belief, however, is that Philosophy's last word to our age will be that all activity in Nature is self-conscious in its own way—that every moving atom has its subjective as well as its objective side, and therefore that the common understanding of the words "machine" and "mechanical" will be found to be very much below the truth. This last word of Philosophy seems to me alone capable of settling effectually and with strictest logic the whole question at issue here. But, in the meantime, without taking this highest ground of all, Philosophy may safely challenge physiology and physiological psychology even to *state* the automatic theory fully in terms which do not involve a contradiction.

Arbroath, N. B. ALEXANDER MAIN.

XI.—NEW BOOKS.*

The Logic of Chance: An Essay on the Foundations and Province of the Theory of Probability, with especial reference to its Logical Bearings and its Application to Moral and Social Science. By JOHN VENN, M.A. Second Edition, re-written and greatly enlarged. London: Macmillan & Co. 1876. Pp. 488.

This is a second edition, as incorporating the greater portion of the work published under the same title by the author ten years ago, but the old matter is presented in a form greatly changed and is supplemented by much that is altogether new. Prominent among the additions are chapters on the nature and physical origin of Laws of Error, on Material and Conceptualist Logic (ground partially covered by the author in No. I. of MIND), on the conception and treatment of Modality by logicians, on the logical aspects of the Method of Least Squares, and on the principles involved in the practices of Insurance and Gambling. The work in its new shape has more than ever the distinctive character of a formal treatise on the principles of Probability from the point of view in Logic which is associated with the name of J. S. Mill, and as such contrasts with Mr. Jevons's treatment of the same subject in his *Principles of Science.* In continuing his review of Mr. Jevons's important work, begun in the last number of MIND, the present writer will hope to bring into clear relief and to estimate the opposite conceptions of Probability and Induction put forward in the two books. It should be added that, now as before, Mr. Venn, while in general agreement with Mill, takes ground for himself on several critical questions of Inductive Logic and makes important additions to the fundamental theory.

Logic. By W. STANLEY JEVONS, M.A., LL.D., F.R.S., Professor of Political Economy in University College, London. With Illustrations. Macmillan & Co. 1876. Pp. 128.

This little work is issued in the series of Science Primers edited by Profs. Huxley, Roscoe and Balfour Stewart. It touches most of the ground covered by the author's *Elementary Lessons in Logic*, but it is no mere abridgment of the larger manual, being independently conceived and even including additional topics of importance, —for example, an instructive last section on fallacies in inductive reasoning. The design, apparently, is to present the central doctrines of logical science in plain language with as few technical terms as possible, and at the same time to give a general notion of the methods alike of scientific inquiry and common everyday inference. In the first part of the work, the author keeps in the main to the lines of the traditional logic. One may regret here and there the omission of particular doctrines like that of Opposition which seem to admit of plain and instructive statement, but the author shows such judgment in his exposition that he may be trusted not to have excluded anything without good reasons.

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* Under this head, it is intended, *as a rule*, to give information only without criticism.

The Five Senses of Man. By JULIUS BERNSTEIN, o.ö Professor of Physiology in the University of Halle. With 91 woodcuts. King & Co. London. 1876. Pp. 304.

One of the volumes of the International Scientific Series, published originally in German in 1875. Sight and Hearing are treated at greatest length, each occupying over a hundred pages (Parts II. and III). Smell and Taste are shortly disposed of in Part IV. (30 pp.), and a little more space is given to Touch (including Temperature) in Part I. In a few pages of Introduction the general question of sense-*perception* is grazed. The book will make English readers acquainted with many of the later German experimental researches on the senses and is therefore to be welcomed. It is however an anachronism at the present day to write a book about the *five* senses, even were there no word in it of anything but sensations; much more, when as here, under Touch and Sight, the exposition deals not less with the perceptions referred to those senses. There needs for anything like interpretation of the experimental results set forth not only a careful reference to the general laws of intellect but also an express consideration of the modes of consciousness connected with muscular activity. Stray allusions to mobility of the sense-organs or such mention of the so-called muscular sense as is made at p. 40, profit nothing when they do not mislead. The optical illusions mentioned and figured from p. 150 will be new to most English readers. Those who can read German should pursue the subject as it is treated by Wundt, with full psychological insight, from p. 561 of his *Physiologische Psychologie.*

The Physiology of Mind, being the first Part of a Third Edition, revised, enlarged, and in great part re-written, of *The Physiology and Pathology of Mind.* By HENRY MAUDSLEY, M.D. London: Macmillan & Co. 1876. Pp. 547.

The first edition of the *Physiology and Pathology of Mind* appeared in 1867, followed in 1868 by a second edition which has now for some years been exhausted. The author has not been forward to reprint the book, partly because it seemed no longer so much needed as it was ten years ago for the direction of inquiry into the right channel. Determining at last, however, to send it forth once more, he has sought to work it up to the level of present knowledge. The original scheme is preserved, but so much new matter has had to be incorporated within it that the first half of the work is now issued separately. With addition of new matter there has gone also omission of various passages, or abatement of tone in others, where the old vehemence of assertion has been rendered superfluous by the advance of opinion. The author wishes the present volume to be "looked upon as a disquisition, by the light of existing knowledge, concerning the nervous structures and functions, which are the probable physical foundations, or the objective aspects, of those natural phenomena which appear in consciousness as feelings and thoughts, and are known only in that way — that is to say, subjectively."

A Treatise on the Diseases of the Nervous System. By WILLIAM A. HAMMOND, M.D., Professor of Diseases of the Mind and Nervous System in the University of the City of New York. With 109 Illustrations. Sixth Edition, re-written, enlarged and improved. New York: Appleton & Co. Pp. 883.

In this very elaborate work, which now appears greatly enlarged, the division made is: I. Diseases of the Brain; II. Diseases of the Spinal Cord; III. Cerebro-spinal Diseases; IV. Diseases of the Peripheral Nervous System; V. Toxic Diseases of the Nervous System. Sections I. and II. are of greatest interest to the psychologist. The treatment of hysteroid affections (Catalepsy, Ecstasy, Hystero-Epilepsy) under Section III. is especially to be noted. Aphasia is treated at great length (pp. 166-205) under Section I., which closes with Insanity (pp. 309-376). The author distinguishes seven modes of Insanity: (1) Perceptional, (2) Intellectual, (3) Emotional, (4) Volitional, (5) Mania, (6) General Paralysis, (7) Idiocy and Dementia. He contends that Insanity is only a "symptom" of brain disease, whence its place in the book; but his classification is, as far as possible, psychologically determined. The definition to which he commits himself is: "A manifestation of disease of the brain, characterised by a general or partial derangement of one or more faculties of the mind, and in which, while consciousness is not abolished, mental freedom is perverted, weakened, or destroyed."

La Psychologie comme Science Naturelle, son Présent et son Avenir. Par J. DELBOEUF. Bruxelles, Muquardt, 1876. Pp. 111.

M. Delboeuf, now professor of philology at the University of Liége, has of late years, by a series of inquiries in different parts of the philosophic field, made a reputation far beyond his native country Belgium. He has now for some time been mainly engaged in psycho-physical investigation of the Senses, and his *Théorie générale de la Sensibilité* mentioned in the last number of MIND, with his earlier *Recherches Théoriques et Expérimentales sur la Mesure des Sensations* (1873), will, it is hoped, on another occasion be critically examined in this journal with the attention they eminently deserve. The present short work, as the title implies, is of a more general character. In the first section he defines the notions of Mind and Body, holding the distinction not to be primitive but developed out of the truly primary distinction of *Ego* and *Non-ego*, and leading up to the conclusion that, as the internal sense and external senses applied directly to ourselves yield but a fragmentary knowledge, their data for psychology must be supplemented from observation of others and by the recorded experience of mankind in history and the sciences generally. He then, in the second section, determines, within psychology in general, the special aim and method of psycho-physical investigation: Psycho-physics, as a natural science, seeks to arrive at primitive mental facts, following them up into the domain of the Unconscious; its method is experimental and quantitative. In the third section examples are given of the scientific reduction of conscious judgments, showing them to be in the last resort syntheses of anterior judgments that seem primitive because there is no consciousness of anything beyond them; but experiment applied to the phenomena of Sensibility and "Motility" carries us farther, evincing that both rest upon processes of unconscious inference whose premisses are in great part supplied by habit and instinct. There next follow two sections dealing comprehensively with Sensation and with Effort, as constituents of Intelligence; while a concluding section throws out ideas as to the ultimate relation between the physical and psychical. The sections of the little treatise are somewhat loosely connected, but several of them are extremely suggestive. Particularly to be remarked, here as in other of the author's works, is the prominence that he gives to motor activity in the explanation of objective perception.

Uchronie (L'Utopie dans l'Histoire), Esquisse Historique apocryphe du développement de la Civilisation Européene tel qu'il n'a pas été, tel qu'il aurait pu être. Paris, Bureau de *La Critique Philosophique*, 1876. Pp. 413.

This is a bold attempt to construct history—and past history—in accordance with philosophical theory, by M. Charles Renouvier, director of the weekly journal *La Critique Philosophique* and leader of an important movement in French thought, which assumes the title of *Criticist* as being a purified and systematised Kantianism. His design is to combat the fatalism and optimism of certain prevalent theories of history, and with this view, in the guise of a free-thinking monk writing at the beginning of the 17th century before being burned by the Inquisition at Rome, he sketches down to that time a history of European civilisation, which from the age of Marcus Aurelius onwards differs absolutely from the actual course that the history has taken. The notion is that with human nature as it actually was the course of events might possibly have been different from that which really came to pass; at the same time he draws out his apocryphal or hypothetical history so as to prefigure the ideal state of society towards which we of the present day are called to struggle. How the ancient civilisation, instead of going on to decline, recovered its vitality by human effort, and Christianity was thrown back into the East till after long time a day came when it could be re-admitted, on terms of fair equality, into a society ordered on principles of sound philosophy—

is duly told. There are also appendices to the fiction, bearing date 1658 and 1709, and notes from an assumed editor's hand at the present time, which remind or inform the reader what was the actual course of history instead of this "better" one. M. Renouvier puts his own name at the end of the book, where in a few pages he discusses the conditions governing such a hypothetical construction as he has attempted. The book is in every way remarkable.

EDITOR.

The Life of John Locke. By H. R. FOX BOURNE. Two Volumes. London: Henry S. King and Co., 1876. Pp. 488, 574.

For the construction of the present Life the author has explored sources hitherto unregarded—above all the documents of the Shaftesbury family. Two stout volumes are the result, in which some of the main points of philosophical interest are alone noticed here. We have little positive information with regard to Locke's early philosophical studies—Descartes on the one hand, Gassendi and Hobbes on the other, being the chief authors. Political Philosophy seems to have attracted him most at first; "Reflections on the Roman Commonwealth," a treatise of 40 closely written pages, in which Hobbes's Theory of the State is followed, being written while he was a student at Oxford, and somewhat later an "Essay concerning Toleration" (unfinished), printed here in full. The discussion referred to in the "Epistle to the Reader," prefixed to the *Essay concerning Human Understanding*, probably took place in the winter of 1670-71, and between that time and the publication of the *Essay* in 1690 we get occasional notices of the progress of the work. The author is of opinion that there is evidence to show that the composition of Book II. followed directly on that of Book I., c. i., that Book IV. was begun before the completion of Book II. or any part of Book III., and that the discussion on Innate Ideas Book I. was written last. Locke was repeatedly urged to follow up his essay by a treatise on Morals, but his modesty and the lofty conception he had framed of the task prevented anything systematic ever being accomplished by him in that field. The cause of Locke's controversial writings was the publication of the *Reasonableness of Christianity*. The argument with Stillingfleet attracted the notice of Leibniz, of whose connection with Locke we hear, however, nothing more than that "Leibniz began in Locke's life-time to criticise his philosophical doctrines, and some of these strictures were submitted to him by their mutual friend Thomas Burnet."

A Philosophical Treatise on the Nature and Constitution of Man. By GEORGE HARRIS, LL.D., F.S.A., &c. Two Volumes. London: George Bell and Sons, 1876. Pp. 410, 566.

The author informs us that the present Treatise is the result of the labour of a long life-time. It consists of a preliminary dissertation on the nature of animated beings and the dual constitution of man in particular; of a book on the psychology of Feeling, or, in the author's language, the Medial Nature and Constitution of Man; another on the Moral Nature and Constitution; and a third on the Mental Nature and Constitution or Intellectual Faculties. Throughout the work reference is made in foot-notes to the opinions of men of every creed and profession. The author derives his evidence indifferently from Science and the Scriptures. His metaphysical position is a dogmatic Spiritualism. "The soul it is which is at all events the only and the whole intelligent and immortal part of us. What are considered the faculties of the mind are the active powers of the soul; and the sensations, emotions and passions constitute its passive capacities of being acted upon."

Philosophy and its Foundations. London: Simpkin, Marshall and Co., 1876. Pp. 94.

The tractate consists of two chapters:—1. Idealism and Sensationalism. 2. Psychology, Moral and Spiritual. The author contends for a solution of philosophical problems on "the principles of Lord Bacon and Mr. Locke." Transcendentalism in all its phases is utterly untenable. "We believe in the *dictum* of Mr. Locke, that Intellect, primarily and fundamentally, may be compared to a sheet of clean paper." With respect to the forms of intuition, Time is the negation or vacuity betwixt events; Space, negation or vacuity betwixt limitation in form. The causal bond is to be found neither in the mind nor out of it, but in a perception of similar relations. Otherwise expressed—the principle of Contradiction rules the logic of facts as of conceptions. Will is the prevalent desire. The foundation of Morality is "the intuition of suitability or otherwise, as applicable to the well-being of a sentient creature."

Dictionnaire des Sciences Philosophiques par une société de professeurs et de savants sous la direction de M. Ad. Franck. 2me édition. Paris, 1875.

This second edition appears after the lapse of from twenty to thirty years. In order to understand the point of view of the Dictionary one must remember that the original preface appeared in 1843, at a time when Royer Collard and Jouffroy had just completed their labours, and Cousin was at the height of his fame and authority. In the declaration of principles the reader is informed that "the only legitimate method" is that of "Socrates and Descartes." In psychology "we teach the most positive spiritualism. The soul is in our eye what it is in reality, a free and responsible force, an existence entirely distinct from every other, which possesses itself, knows itself, governs itself, and carries in itself, with the imprint of its origin, the pledge of its immortality." The present editor has attempted to soften the dogmatic rigour of the earlier issue; M. Paul Janet, for instance, having replaced the article on "Duty," "written in a too systematic spirit, by a new article more conformable to the impartiality of the true philosopher." So with other articles. (On turning to the article on "Duty," however, one finds little else than an analysis of the ethical theories of Kant.) It would, perhaps, have been well if the revisions had been more extensive. In the article on "Logic," for example, we read that "the illustrious successor of Reid and Stewart will soon (!) publish, under the title of *A New Analytic*, a work which will doubtless effect a change in some of the principal theories hitherto considered established." This new edition is especially strong in Biography. The names of philosophers of note who have died since the first edition are inserted in their places, their works described, and their leading opinions critically examined. The new biographical matter has been chiefly furnished by M. Emile Charles. His careful presentation of the views of Hamilton, Mill, and Schopenhauer may be particularly mentioned. Mill's theory of the External World is discussed at great length. M. Charles follows the argument step by step, and concludes that Mill ought to have ended by becoming a pure subjectivist. "The doctrine reposes on the contrast between sensations of two kinds: admitting the reality of the fact, one does not see the consequence to follow, that of those two classes the one will necessarily be attributed *au moi*, and the other *à l'extérieur*. It might be so if we had already the idea of something different from ourselves, and not only that of difference between two of our states—if, in a word, the contrast implied the distinction between the subject and the object. Without that condition, one does not see why the mind goes beyond itself; one does not see how it can assure itself there are other minds, although Mill declares that their existence is 'susceptible of proof.'" In his view of Hamilton, M. Charles is largely in agreement with Mill, urging many of the objections found in the *Examination*. Hamilton's place in the ranks of philosophy is that of a subtle dialectician. In showing the weaknesses of opponents he was a master. But it is difficult to say what were his positive convictions. With Anselm he might have said, *Credo ut intelligam*, and yet more ruthlessly than Kant he destroyed every basis of certainty. It should be added that memoirs of scientific men of a philosophic cast of mind are included in the present edition—Ampère, Cuvier, Lamarck, &c. An article of considerable length is devoted to the life and labours of Galileo.

Metaphysics; or, The Science of Perception. By JOHN MILLER. New York: Dodd and Mead. Pp. 402.

"The Science of Perception" is regarded under five aspects:—1. *As such* (Psychology); 2. *As knowledge* (Logic); 3. A*s the knowledge of Being* (Ontology); 4. *As emotion* (Pathics); 5. *As knowledge of the Being of a God* (Theology). A conscious current is the ultimate human reality; and the object of the treatise is to show that Perception is its only phenomenon. Perception is either Consciousness, or Emotion, or Cognition. Of Perception there are six fundamental and inexplicable laws:—It (1) is incessant; (2) follows the strongest emotion; (3) is fading; (4) affects the body in its nervous, muscular and sanguineous systems; (5) is continuous; (6) is recurring. There are no "simple ideas." There is more than we are conscious of. Order, analogy, difference drive us beyond thought—drive us to the inference of permanence, faith in a something of which we are not conscious. The final cause of all is to be sought in Ethics.

Eléments de Philosophie populaire, par O. MERTEN. Namur, 1876. Pp. 144.

The intention of the author in issuing this little work is to put in the hands of the masses an easily-comprehended account of the laws and functions of human intelligence. The point of view is approximately that of the Scoto-French spiritual eclecticism of the earlier part of this century. Substantial Soul, Freedom of Will, Personal Immortality are rational beliefs. A popular treatise on moral philosophy will probably follow.

Zur Analysis der Wirklichkeit. Philosophische Untersuchungen von OTTO LIEBMANN. Strassburg, 1876. Pp. 619.

In general conformity with the earliest division of Philosophy into Dialectic, Physics and Ethics, the author discusses the problems of Thought and Being in three sections entitled respectively, "Critique of Knowledge and Transcendental Philosophy"—"Natural Philosophy and Psychology"—"Æsthetics and Ethics." This order is the proper one, inasmuch as consideration of the conditions of human knowledge must precede any attempt to estimate the content of knowledge, external or internal; after which the mind may pass to a judgment of value, and the arrangement of a scale of worth, of its objects. The point of view is Kantian. As the philosophical problem was imperfectly conceived before Kant, and as since Kant, on the one hand, Idealism has been pushed to an extreme by Fichte, Schelling, Hegel, and, on the other hand, Realism has been illusively set up by Herbart, a return must be made upon Kant as the exponent of an ever legitimate and necessary Criticism. The author commences by a short and sharp examination of Berkeley. Berkeley's fundamental error lay in concluding from the verbal proposition "The only mode of existence known to us is *Percipi*" to the real proposition "*Percipi* is the only possible mode of existence;" to which may be added that, allowing the illogical inference to pass, the outcome of Berkleianism should have been Solipsism. The ground cleared of a false idealism, the author is ready to lay down the lines of a genuine idealism by endeavouring, in the spirit of Kant, to separate matter and form of consciousness. The phenomenal character of Space is the first result of criticism. The circumstance that the mathematician is able to conceive, though not to intuite, a space of more than three dimensions, shows that our space (the space of the Euclidian geometry) is only a form of human intuition, the wrapping of our material experience which beings of another order might not possess. Whether the order of the absolutely-real beyond our consciousness agrees with our space-intuition we are wholly unable to say. The relativity of Time is next illustrated, after which the antinomy of Motion is examined. The validity of the first law of motion only holds on the assumption of absolute space, an assumption which physicists are apt to forget. But only a solitary body can move rectilineally for ever, *ergo* absolute motion is postulated too. That Physics is constrained to assume Absolute Space, Time and Motion proves their transcendental legitimacy for supporting the empirical content of consciousness, but affords no warrant for concluding to congruent or commensurable counterparts in the realm of Reality. The category of Cause has its difficulty only for the uncritical thinker. Here again we can conceive an intelligence not bound by the conditions of human existence. We have only to remove the framework of Time, and every inference implying causal connection (as that say of a falling body) will be assimilated to a syllogism, where a special instance is subsumed under a general law, and the inference drawn by an indivisible act of intelligence. Lastly, how stands it with the notion of the *à priori* in general? Strip human consciousness as completely as one may, there remain the laws of thought itself which make all special thinking possible. *Tabula rasa* and *ideae innatae* are untenable extremes. Scepticism is suicidal, for what does Hume's "Custom" come to but the recognition of a psychical cause of a necessary effect, viz. the illusory belief in an objective "tie" between antecedent and consequent. Materialism and Spiritualism assume entities of which consciousness knows nothing—there are only left the mental laws through which such entities are constructed. Without rational conditions no empirical world possible! The *à priori* then is *meta-cosmic;* to make it cosmic would be to leave our world, material and intellectual, without a base. The procedure of Kant in Metaphysics was identical with that of Newton in Physics—he concluded from the conditioned to the conditioning, and found the latter not in the temporal sphere (for time itself is only a form) but in the eternal "transcendental," whose standing marks are *universality* and *necessity*. The logical *à priori* must not be confounded with the psychological *à priori*. Anything may be conceded to Darwin and Spencer on the latter point without touching the meta-cosmic grounds of experience of all orders.

The second Section is occupied with such themes as "The philosophical value of Mathematical Physics," "Atom," "Platonism and Darwinism," "Cosmogony," "Instinct," "Man and Animal," "Brain and Mind." Under the guidance of the principles laid down in the Critique of Knowledge the author reviews the leading problems of the empirically-real, drawing in each case the line between the truth for us and the truth rationally (λόγῳ). Nature, what is it? "Unity in multiplicity, all-prevailing regularity in the confused wealth of particulars, *ordo ordinans*, objective World-logic. It is that ever silent, active Reason which has determined the majors of the Happening, which supplies the minors *in concreto*, and out of the present world-condition draws as conclusion the next, and then the next therefrom, and so *in infinitum et in aeternum*." But (Section third) the universe of consciousness is not exhausted by Physics and Metaphysics; after the fullest consideration imaginable of what *is*, remains the further problem of the *ought to be.* To the innumerable antinomies of the Universe must therefore be added this final one of Actuality and Possibility, both following their own laws and clashing at every turn. Our ideals properly belong to the subjective sphere, but we instinctively project them into the outer world, and strive to shape the outer world into conformity with them. It is as futile to dispute the existence of norms of Beauty and Goodness because tastes and consciences vary as to disown a stable universe because Science is progressive. As no people is to be found without an idea of truth, so none is without a feeling of beauty and moral distinctions. The method of Ethics as of Philosophy as a whole is analytical; taking the moral perceptions and judgments as data we examine their conditions. It will be found that there is a *Δαιμόνιον* in all men which no empirical theory can explain.

W. C. COUPLAND.

NEWS.

IN a communication recently made (19th April) to the Vienna Academy of Sciences (Philosophico-Historical Class), Professor Th. Gomperz presents in a new light Epicurus's doctrine of Will. Comparing certain fragments of the 2nd and another book of Epicurus's main work Περι Φύσεως, to be found in Vol. VI. of the Second Collection of *Herculanensia Volumina*, with fragments that were printed in the earlier Collection, he is able to establish the following series of "irrefragable conclusions":—"Epicurus was not, as hitherto supposed, an indeterminist; he was an opponent of fatalism, not of determinism; he did not believe in the causelessness of human volitions; he held (with Voltaire and others) as morally free the man whose acts were determined by his convictions: in expounding the process of volition he avoided, like the best thinkers of our own time (Mill, Comte, Grote and Bain), the use of the word *necessity* as misleading and confusing; like these thinkers he objected to describing by one and the same word the action of *uncontrollable* causes and the action of causes in general. Finally, his theory of Will took a special colouring from its connection with the theory of knowledge peculiar to him and Democritus. It is evident that the problem of Will assumed for him the definite form of the question—How can a volition be excited by an impression (*εἴδωλον*) from without, the condition of all perception and representation, and at the same time be determined by the sum total of our convictions, *i.e.*, our collective personality?" Professor Gomperz proposes to give, on another occasion, a full exposition of Epicurus's theory of Will. To clear up various parts of the printed fragments he must, however, first repair to Naples and consult the original papyrus-rolls. It is worthy of remark that Grote, who is signalised as above in the official summary of Professor Gomperz's communication, himself divined that Epicurus, in his opposition to fatalism, was no indeterminist; see his short essay on Epicurus printed in the Appendix to *Aristotle*, Vol. II., p. 441.

The English Committee for the Spinoza Memorial has issued the following circular:—

The desire to see a Statue of Spinoza at the Hague, which has before now been expressed on the spot, and has met with wide assent, must recur to many minds as the February of 1877, the bicentenary of his death, is drawing near.

Germany has for many years contemplated the statue of Kant at Königsberg, and it is not fitting that Holland should be any longer without that of Spinoza, who was born and bred, who lived and died upon her soil. She has already honoured her painting in Rembrandt, her poetry in Vondel, her love of liberty in William of Orange, her naval glory in De Ruyter, her learning in Erasmus, her medical science in Boerhaave, and she now seeks to add to their memorials that of a philosopher whose writings, too long and too often misunderstood, have at length been recognised by many students in many lands as among the enduring masterpieces of the human mind.

It is proposed accordingly to erect a statue of Spinoza at the Hague, if possible in sight of the spot where he spent the last ten or twelve years of his short life and wrote the works that were to be his legacy to mankind. A number of men of letters and science in Holland have formed a committee for this purpose, and as the name of Spinoza belongs not only to Holland but to the civilised world, they hope that men of all countries may be found willing to help in doing honour to his memory. Moreover, they do not address themselves exclusively to students of philosophy who can appreciate Spinoza's subtle and far-reaching thought, but also to the much larger number who can recognise and admire the singular purity and disinterestedness of his life, and his unflinching devotion to the pursuit of truth.

The following names of supporters are added to those mentioned in our last number:—Lord Arthur Russell, M.P.; M. E. Grant Duff, Esq., M.P.; Sir Louis Mallet, C.B.; Hon. Mr. Justice Grove; The Hon. Roden Noel; Matthew Arnold, Esq.; J. A. Froude, Esq.; Shadworth H. Hodgson, Esq.; James Sully, Esq.; Prof. G. Croom Robertson; Rev. Prof. Marks; Rev. James Martineau; T. H. Farrer, Esq.; Sir B. C. Brodie, Bart.; Prof. Bryce; Rev. J. P. Mahaffy. Subscriptions may be sent to F. Pollock, 5, New Square, Lincoln's Inn, London, Hon. Sec. and Treasurer to the English Committee; or direct to the Treasurer of the Central Committee, Mr. A. Wm. Jacobson, 39, Raamstraat, The Hague.

The newly-founded "Education Society," mentioned in MIND, No. II., has now issued an elaborate Programme, in which it is sought to map out the proposed area of investigation, so as to enable branches of the society and individual workers to proceed on a common plan. From the communications received a selection will be made by the Committee for the Published Proceedings. Professor J. M. D. Meiklejohn is Chairman of Committee for the year. The Honorary Secretaries are Mr. C. H. Lake (Withernden, Caterham, Surrey), and Mr. E. Blair (11, Orme Square, W.).

Mr. Robert Adamson, M.A., of Edinburgh, has been appointed Professor of Logic, Moral Philosophy, and Political Economy, in the Owens College, Manchester.

No. 4.] [October 1876.

MIND

A QUARTERLY REVIEW

OF

PSYCHOLOGY AND PHILOSOPHY.

I.—PSYCHOLOGY—A SCIENCE OR A METHOD?

No student of Locke and Hume can read the psychological works of the present day without feeling anxiety for the future of the study of Mind or Experience. The modern psychologist is profoundly dissatisfied with his subject; the exact and the classificatory sciences, by the brilliance of their methods and results, fill him with envy; he is painfully conscious that mental phenomena are not definite enough to be the objects of a science; he must therefore connect them with other phenomena which are. Hence the "Physiological Psychology" of our day. But surely this is not psychology, or the study of experience, but physiology. Let us keep clearly before our minds that psychology is the study of experience, and inquire whether it has the marks of a Science or of a Method—whether it is a speculative, or a practical study.

The objects of a Science properly so called may be of two kinds: they may be either such as admit of exact measurement, as the objects of the different branches of physics—heat, light, electricity, &c.; or such as admit of being classified on a natural or genealogical principle. Now, do the objects of mental science fall under either of these heads? They cannot be measured or expressed mathematically. There are no formulæ for the various experiences of which we are conscious. The formulæ for nervous action belong to physiology, not to the study of experience. At first sight it may appear that the objects of mental science may be classified; but the classification of one's own experiences is not one which bears any real resemblance to a classification of organs or organisms revealing genealogical connections, and thus opening up a history of development. In making this latter statement, we do not forget the just claims of Comparative Psychology to recognition as a department of study; but we think that its value is at present overrated. Its scientific claims are based on the fact that its classifications reveal genealogies. We may admit this fact, without assigning a very high scientific place to the study. The genealogies made out by comparative psychology strike us as extremely unsatisfactory. At best, we have a few beliefs and sentiments traced back to earlier forms—often by the aid of a good deal of mere guessing; but nothing in the way of results really entitling the study to be called a science. It is not a science in the same sense in which comparative philology, for instance, is a science. Here the results are not only numerous, but as definite as those in any other classificatory science; and moreover the comparative philologist has certain principles—*e.g.*, Grimm's law—derived from his comparative studies, which enable him to proceed deductively. It may be said that the comparative psychologist has the laws of mental association which enable him to treat the genealogy of mental states deductively. But our knowledge of the laws of mental association was not derived from the comparative study of mind, but from the introspection of our own consciousness. They were formulated long before the days of comparative psychology. This, of course, would not affect the scientific claims of comparative psychology if we could be sure that the laws of mental association as employed by the comparative psychologist are true expressions of the actual ways in which psychical development has taken place, as we are sure that Grimm's law is the formula for phonetic changes which have actually taken place. The laws of mental association, as given in our manuals of psychology, are, doubtless, correct expressions of the ways in which ideas are actually called up—the evidence which we have for them being our own personal consciousness of them. But they are, after all, expressions of the widest generality; they are not the *media axiomata* upon which a deductive psychology can rest. Its *media axiomata*, or really fruitful premisses, must give more particular information respecting the *kinds* of ideas which are contiguous or similar, and the *kinds* of connections which are novel or inseparable in different individuals or races. Real premisses of this sort can be abstracted only from the special study of these individuals or races. It is a matter of the greatest difficulty for the psychologist not to apply *directly* the general laws of association which his own consciousness supplies him with—his own contiguities, similarities, surprises—to the minds of low races; if, in his desire to avoid this error, he does not fall into its opposite and ascribe to them modes of association as unlike his own as he can make them. What guarantee then have we that the so-called deductive method of comparative psychology is not more akin to Scholasticism than to *Naturforschung?* How shall we distinguish between *Culturgeschichte* and simple introspection? That this is not an idle question, any one may satisfy himself who reads Adolf Bastian's *Der Mensch in der Geschichte,* a work in which comparative investigations are dominated by simple introspection of the worst kind—that against which Bacon and Locke protested when they called upon men to return to the data of their senses and the thoughtful examination of their own faculties. This fundamental introspection Bastian, who merely exaggerates the tendency of a large school, neglects for the introspection of *notiones temere a rebus abstractæ.* Hence his works have two aspects. They are at once systematic and confused. A brilliantly red line of theory connects fact with fact, and yet any sensible reader perceives that these facts are most of them irrelevant, because the well-informed author has evidently not realised them for himself in his own mind. The chief danger, it appears to us, of the present crisis in the study of psychology is that the novel facts and attractive generalisations of *Culturgeschichte* are insensibly casting discredit upon the thoughtful introspection of one's own adult experience, without which real knowledge and correct conduct are impossible. At the same time, psychologists, more and more impressed by the impossibility of giving an exact scientific account of subjective states and their mutual relations, are turning their attention from these states to their physiological accompaniments, in the hope of thus constructing a scientific psychology. Because there can be no science of subjective experience, they show a tendency to ignore it, and to stamp introspection, as compared with physiology, as a waste of time. Mill condemns simple introspection, but, at the same time, maintains the existence of a science of psychology distinct from physiology.

Students of Locke, Berkeley and Hume do not require to be reminded that it is by Introspection, and not by Comparison, that these thinkers conduct all their principal inquiries. Their method is to turn the reader's attention from meaningless words to his own actual thoughts—to ask him what he is conscious of in his own mind when he uses such words as *Substance* and *Cause*. Such appeals to the reader's own consciousness are essential to the old method of English psychology. Locke, Berkeley and Hume cannot with any justice be claimed as adherents of the comparative method, although, doubtless, they occasionally use it. The question then presents itself—Was their psychology a science at all? It certainly has not the marks required of the science of psychology by the modern English school. We venture to say that this school in setting up a *science* of Psychology has broken the English tradition. The English tradition was to study mind not in order to construct a science of mind, but in order to find a *method* which should bear fruit in objective inquiries. The great merit of the Locke-school is that it swept away the merely phantastical and verbal sciences of mind which Animism and Scholasticism had bequeathed. But it did not construct another science of mind of its own to take their place. It saw clearly that to do so would be to create a new animism and scholasticism. The one object which Locke, Berkeley and Hume kept constantly before them was to put men in full possession of their own minds as organs for the discovery of truth and the critical estimation of scientific and other ideas. The passage in Locke's "Epistle to the Reader" is well known where he says—"Were it fit to trouble thee with the history of this Essay, I should tell thee that five or six friends meeting at my chamber and discoursing on a subject very remote from this, found themselves quickly at a stand by the difficulties that rose on every side. After we had a while puzzled ourselves without coming any nearer to the resolution of those doubts which perplexed us, it came into my thoughts that we took a wrong course; and that before we set ourselves upon inquiries of that nature, it was necessary to examine our own abilities and see what objects our understandings were or were not fitted to deal with. This I proposed to the company, who all readily assented; and thereupon it was agreed that this should be our first inquiry."

Locke, Berkeley and Hume were critics. They found science and ethics cultivated securely in a spirit of debased conventionalism. They supplied the torpedo-shock by asking questions like these—"Do you understand what you are talking about when you use this word and that?"—"Do men really hold this and that belief which you ascribe to them?"—"Can they desire or do this or that which you say it is their duty to desire or do?" By such appeals to their individual consciousness men were roused from their "dogmatic slumber," and put in possession of their natural faculties. It will be readily admitted, we think, that logical method, as we now understand and use it, would be impossible, did the interpretation of experience continue to postulate the conceptions of *material substratum* and *necessary connection.* So long as men held that Truth is the correspondence between perceptions and substrata, their science could be only verbal, if it did not degenerate into Pyrrhonism. It was Locke and Berkeley who pointed out that Truth is the correspondence between the order of ideas and the order of perceptions, and Hume who made it impossible for men to rehabilitate this latter order as a quasi-substratum. Without this foregoing criticism, our Inductive Logic, or the Method of estimating the constancy of sequences, would have been impossible. Locke, Berkeley and Hume supplied what we may call critical prolegomena to the Logic of our day. They showed once for all that we must use our senses; that we must acquiesce in the order of sensible phenomena; that correct reasoning is the exact mental reproduction of this order; and that we must not try to explain particular connections, or render them plausible to ourselves by postulating general propositions or a metaphysical bond. Nearly all that is of fundamental importance in modern logic is thus contained in Locke and his two followers. Locke, besides his indication of the true source of knowledge, supplied a theory of Reasoning, which is identical with Mill's; Berkeley further developed this theory by means of his fertile suggestion that scientific discovery is a hermeneutic of Signs; and Hume, probably profiting by Berkeley's refutation of the assumption of the optic writers, said nearly all that is said by modern logicians in their chapters on Causation. The moderns deserve all credit for the manner in which they have followed out the lines thus laid down by their great predecessors in logical method; but it is all the more surprising that they display so little appreciation of the spirit in which these lines were drawn. The great conceptions with which the old school enriched them were obtained, as we have pointed out, by a habit of thoughtful introspection; any fair mind setting itself to the work of self-examination could not fail to see that all its scientific knowledge comes from without, that it infers one particular from another, and that it is never conscious of anything like a necessary bond connecting phenomena. To hold other beliefs than these, though natural, implies want of thought. Modern writers have accepted, in Logic, the results of this thoughtful attitude—but, we venture to think, only dogmatically; the real attitude of their own minds is different. They maintain, as psychologists, that introspection is essentially fallacious. They therefore have an end in view which Locke and Hume did not contemplate, when they examined Human Understanding according to the introspective method. We do not, of course, maintain that the comparison of the data of introspection with the inferred experiences of other people, and, where possible, of the lower animals, does not give valuable results of a certain kind; but we protest against the growing tendency to allow this sort of *Culturgeschichte* to cast discredit upon the thoughtful examination by the adult of his own adult experience. It may be said that *Culturgeschichte* interprets adult experience, and aids thoughtful self-examination. It certainly ought to do so, and to a certain extent actually does; but to a much greater extent, we fear, it dissipates the mind amid a mass of often irrelevant narrations, and, after all, gives no laws which are properly scientific, because they have not been obtained by the employment of the recognised methods of science, which are admitted to be inapplicable to sociological phenomena. The laws extracted from *Culturgeschichte* constitute, perhaps, a Philosophy of History or Civilisation—an extremely wide subject—too wide to be called Psychology, we think, and too vague to rank as a science. The growth of religious, moral and scientific ideas is certainly an important and interesting study. But it is not a science because it is interesting, nor is it practically so important as the thoughtful inspection of our own common experience which can be carried out very well without its aid. That it is not practically important in Logic is proved by the fact that, as we have seen, logic owes its fundamental conceptions to introspection as practised by Locke, Berkeley and Hume. In Ethics it may be thought that the results of *Culturgeschichte* are of more importance. But we do not think that they are. They are, at any rate, virtually ignored by a thinker like Mr. Sidgwick who, in his epoch-making book, returns to the old English attitude of thoughtful attention to one's own adult experiences. Against this *practical* importance of introspection what *scientific* claims has comparative psychology to urge? It furnishes miscellaneous narrations, but not scientifically definite laws. And if it be urged that a man may come back from *Culturgeschichte* to the study of his own mind, and find himself able to give a strictly scientific account of his thoughts, feelings and volitions, we answer that the psychologists of the present day do not think so, but feel obliged to connect mental states with their physiological correlates. Now, as the physiology of the nervous system is obviously not the study of Mind, what becomes of the *science* of Psychology? Μάταιον τὸ εἶδος. *Culturgeschichte* is not a science; and introspection even in the light of *Culturgeschichte* is not a science; and physiology is not psychology.

Psychology then, if we retain the word, is a *critique*, a Method, a certain thoughtful attitude in science, morals and literature. It is the critical examination of my own adult opinions, desires and tastes in relation to present objects. *Culturgeschichte* leads me away from this contemplation of myself. It may be useful as supplying materials for a natural method of educating and influencing others, by showing the ways in which beliefs and habits have been formed; it may convince men of the impossibility of civilising all races after one pattern; and in other ways it may bear practical fruit; but it has rendered the thoughtful attitude of Locke and Hume unpopular, and this is a serious evil. No amount of information respecting the evolution of belief or sentiment, and no amount of mental physiology can ever take the place of acquaintance with my own real opinions and desires. Modern works on mental science, with very few exceptions, forget this. The conditions of ideation, the origin of moral and æsthetic feelings, and such like, are fully discussed; but we look in vain for a home-question like this—"After all, do I really desire nothing for myself but Happiness." Individualism—thoughtful reference to one's own experience—is indeed a rare quality now; hence our books are not likely to live as classics. Mr. Sidgwick's *Methods of Ethics* is an exception. Its attitude is eminently personal and reflective, and, for this reason, we venture to think that it will live, and take classical rank beside Locke and Hume.

In conclusion, that we may not be misunderstood, let us repeat that we look upon *Culturgeschichte* and Physiological Psychology as studies of great interest and importance, worthy in every sense of the devotion and ability now given to them; but surely they would be dearly bought at the price of making us less accustomed to reflect upon our own personal experience, which is all in all to us. There ought naturally to be no more antagonism between *Culturgeschichte* or Physiological Psychology and the thoughtful attitude than there is between geology or astronomy and the thoughtful attitude; but, as a matter of fact, there is more. To prevent this matter of fact being construed to the disadvantage of the thoughtful attitude is the object attempted in the present paper. Let us prosecute our comparative studies and our physiology by all means; but let us not allow them to discredit the habit of reflecting upon our own thoughts, desires and tastes; for upon the cultivation of this habit our knowledge, conduct and happiness ultimately depend.

J. A. STEWART.

II.—AN ATTEMPT TO INTERPRET FECHNER'S LAW.

Though Fechner's "psychophysical" investigations are now far from unknown in this country—thanks in great part to Mr. Sully's *Sensation and Intuition*—they are still not known so generally as to make it safe to discuss their interpretation without at any rate a short preliminary account of the facts themselves. But first of all we shall find it well to learn from Fechner himself something of the way in which his inquiry worked itself out.

In an historical sketch appended to his *Psychophysik*,* he confesses to have been all his life a thorough-going monist, regarding body and soul as but a double manifestation of one and the same real being; and it was the attempt to elucidate these views† that brought him face to face with the question: What is the relation between the intensity of a psychical action—estimated by consciousness of course—and the strength of the underlying physical action, as measured by the work done? For long he supposed the two to be simply proportional, but this view led him to nothing and he abandoned it. Then for a time he contented himself with representing sundry relations of body and mind and of lower mental states to higher "schematically," by means of arithmetical series of different grades; and afterwards he did the same thing, using geometrical series instead. At length, when the need for something more than a merely illustrative—for some exact—expression of the actual interdependence between mind and body again pressed itself upon him, one morning (22nd October, 1850), as he turned the matter over in bed, his old geometrical series set him thinking that perhaps the *relative* increase of the bodily *vis viva* (or $\frac{d\beta}{\beta}$, β representing *vis viva*) might be the measure of the *increase* of the corresponding psychical intensity, in other words that the latter might increase in an arithmetical series as the former increased in a geometrical. Now what is called Fechner's Law is little more than a statement of this position thus reached by mere guessing and left for a time without verification. For it was not till he corresponded with W. Weber (the electrician) that he was brought to see the need for testing his conclusions by definite experiments. But, once this need was seen, he spared no time and no pains to supply it, and he may be fairly said to have earned for himself a place among the heroes of experiment by his years and years of patient and persistent investigation. In the course of this he came to hear of several independent workers who had verified his hypothesis by the way, their main inquiry being different; some, as Masson and Steinheil, being occupied with photometry, while E. H. Weber, in determining the *minima sensibilia* of sight, hearing and touch, had completely anticipated him, both in the statement of his law and the discovery of facts in support of it. Still Fechner was the first to interpret these facts, and it is important to have noticed that in his case the interpretation led to the facts, and not the facts to the interpretation. In his *Psychophysik* he does indeed recount his own experiments and those of his forerunners and fellow-workers before asking; What do these results mean? Yet all this is only formal. Fechner's *à priori* speculations led him, as we have seen, to a certain formula which his experiments *interpreted in a certain way* will substantiate, but the mode of interpretation itself has hardly been tested with sufficient care.

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* *Elemente der Psychophysik*, von Gustav Theodor Fechner. Leipzig, 1860. Vol. ii. pp. 553 ff.

† In an earlier work, entitled *Zend Avesta oder über die Dinge des Himmels und des Jenseits*. Leipz. 1851.

So much as to the history of Fechner's Law. In the law itself two points are to be noticed:—(1) The formula already mentioned, which Fechner usually calls Weber's Law:—

$$d\,\gamma = \mathrm{k}\,\frac{d\,\beta}{\beta} \quad . \; . \; . \; . \; . \; . \quad (1)$$

and which integrated becomes

$$\gamma = \mathrm{k} \log \beta - \mathrm{C} \quad . \; . \; . \quad (2)$$

where γ = intensity of sensation, and β = the corresponding stimulus. Stated in words, this amounts to the following:— In order to obtain the same *sensible* difference between the impressions of two stimuli, as the stimuli increase in quantity, their *actual* difference must be always the same fraction of their magnitude; (*e. g.*) the difference felt between 10 gr. and 11 would be identical with that felt between 100 and 110, all other conditions being supposed the same. (2) With Weber's law Fechner combines what he calls "the fact of the threshold," the fact, *viz.*, that the stimulus must first exceed a certain magnitude before sensation can begin. Calling the threshold-stimulus b, and substituting this for β in (2), when γ will be 0, and so $\mathrm{C} = -\mathrm{k} \log b$ we obtain the equation.

$$\gamma = \mathrm{k}\,(\log \beta - \log\, b) = \mathrm{k} \log \frac{\beta}{b} \quad . \; . \; . \; . \quad (3)$$

This is what is generally spoken of as Fechner's Law. Now assuming this law to be true as a statement of a relation between a certain psychical fact (the so-called intensity of sensation) and a certain extra-corporeal physical fact (the stimulus), there are still two questions to answer before the law can be said to be explained. First, what exactly is the psychical phenomenon called here the intensity of a sensation; and, secondly, where are we to place the law itself? Beginning with the latter question, we see at once that there are at least three elements concerned, sensation, nervous movement (including that of the conducting fibres and that of the nerve centres), and stimulus. Now, for anything at first appearing to the contrary, the law may come in between sensation and nervous process, which would then be always simply proportional to the stimulus; or the sensation may be simply proportional to the nervous movement, and the law have place between this last and the exciting stimulus.

The second alternative, it is evident, gives to the law only a physical significance, while the first brings it into the domain of psychology; and this, it is needless to say, is the alternative adopted by Fechner all along. As we have seen, it was only the adoption of this alternative that brought him into acquaintance with the facts which his law formulates. Still he does make several objections to the other alternative, and these it behoves us to consider.

(1). Fechner objects first that the relation expressed by his law is quite conceivable as existing between things so essentially different as psychical and physical "activities," but is inconceivable as holding between two material "activities," the stimulus and the consequent nervous movement. This objection seems based on the assumption that, with the second alternative, energy must disappear between the one physical process and the other, of which no account can be given. But then why are we bound to suppose that the formula, if physically interpreted, has to do directly with quantity of energy at all? The very same formula will express the relation between the densities of successive indefinitely thin strata of the atmosphere and their heights above the earth, *i.e.*, as the heights increase in arithmetical ratio, the densities diminish in a geometrical ratio; or it expresses the dependence between the temperature of successive portions of a metallic bar and their distance from the source of heat, the flow of heat being steady, so that, for example, as the temperature of the source rises in geometrical ratio, the length of the portion of the bar perceptibly affected will increase in arithmetical ratio; or in place of heat and temperature we may substitute electricity and potential, and the same statement will still hold. In the last cases it is supposed that the thermal and electrical conductivities are each constant, which is not true in fact; but, strangely enough, Fechner has made an analogous assumption, which, as we shall see presently, he has not satisfactorily proved. It is thus quite possible to give a physical interpretation to Fechner's law without implying anything "inconceivable."

(2). But against any such physical interpretation Fechner objects further:—It is most natural to suppose that so long as the organ of sense is uninjured by stimulation, the increase in the action of the optic or auditory nerve (*e. g.*) should be proportional to the increase in the stimulus, and not to the logarithm of the stimulus. Here apparently Fechner has not thought it needful to distinguish between nerve-fibres and nerve-centres. The supposition made may be true enough for a nerve-fibre along which a wave is travelling in only one direction and that may be regarded as of only one dimension, and yet not true of the centres where such stimulation is irradiated, has perhaps to contend with resistances, and where waves from opposite directions may interfere.

(3). Fechner has a third objection depending upon what he calls the Parallel Law. This law is stated thus: "If the sensibility for two stimuli be changed in the same ratio, the sensation of their difference will remain the same;" *e.g.*, if two weights, P, P + D were lifted first with fresh muscles and then with muscles that are exhausted till each weight feels twice as heavy, still the appreciation of D would remain as before. Now this law, it is urged, is only compatible with the first or psychological interpretation of Fechner's law, for on the second or physiological interpretation, if the nervous movements produced by P and P + D be twice as great, the difference between them, and so the sensation corresponding to this, must also be twice as great. Very good, but what if, after all, there is no Parallel Law? Fechner's arguments in support of it are of two kinds, first, a certain indirect argument, which he considers "*sehr bindend,*" and then the results of sundry experiments, and these he admits are neither so general, so simple, nor so clear as could be desired. The indirect argument amounts to this:—If the Parallel Law were false, *i.e.*, if absolute sensibility and sensibility to difference were not independent, the primary law itself could not have been established, for through a long series of experiments the absolute sensibility must have been subject to continual variation. To this there is a double answer: (1) Only the average of such experiments were taken, so that differences depending on variations of sensibility would for the most part neutralise each other; and (2) in fact, in any strict sense, Fechner's law is not guaranteed. Where it best admits of a rigorous testing, *viz.*, in the case of sight, it has been shown by Helmholtz to be "only approximately correct," and that too by facts which contradict the Parallel Law.*

Turning to the experimental evidence in favour of the Parallel Law, it is to be remarked that sensibility at the same part may be different at different times, or at the same time it may be different at different parts. As to the last, Weber experimented on the sensibility to weight of different parts of the body, and, so far as these experiments can be considered to throw light on the Parallel Law, Fechner allows that they discredit it. He himself experimented as to difference of time or state for the same parts, *i.e.*, in fact as to the difference between muscular sensibility before and after exhaustion. But the means taken to exhaust the muscles—raising and lowering, or continuously supporting, heavy weights—were found in all cases to accelerate the pulse, and in some cases to accelerate it very considerably; and with quickened pulse came increased sensibility to difference, the increase being on the whole greater as the pulse was quicker. Fechner does not appear to regard this as evidence against the law, but simply as a disturbing element to be allowed for. But along with the increased pulse there went of course, as a joint effect of the muscular exhaustion, an increased absolute sensibility; the same weight felt heavier: it seems then scarcely the more probable solution of the matter to connect this increased sensibility to difference with the increased pulse, and to deny it any connection with the increase in the absolute sensibility. Surely the most natural explanation is to connect with the change of pulse not one form of sensibility only, but both; and indeed Fechner's tables will bear this out. Besides these experiments Fechner dis-

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* Cf. Helmholtz, ***Physiologische Optik***, pp. 314-316. Expressing the value of two sensations γ and γ' by formula (3) as given above and subtracting, we get what Fechner calls the Difference Formula (4) thus:

$$\gamma = k \ (\log \beta - \log b)$$
$$\gamma' = k \ (\log \beta' - \log b)$$
$$\gamma - \gamma' = k \ (\log \beta - \log \beta') \quad . \ . \ . \ . \ (4)$$

Now change of sensibility means change in the value of b, the threshold stimulus, the one in fact varying inversely as the other. But when the constant b changes, may not the constant k change too? If it does, becoming say k', when b becomes b', then for change of sensibility we have but to substitute the new value of k in the Difference Formula, and we see at once that the Parallel Law does not hold. In the experiments of Helmholtz it turned out that k did vary with the sensibility; and it may be remarked further—the remark to be taken for what it is worth—that as there are physical analogies to Fechner's law, so these all furnish analogies against the existence of a Parallel Law.

cusses certain phenomena of vision that are apparently contrary to his Parallel Law, and endeavours to reconcile them with it. Thus things become visible to us in partial darkness after a time though at first nothing could be seen, but on returning again to daylight this power of discrimination is soon lost; that is, says Fechner, the stronger light exhausts the eye, and with the exhaustion comes diminished sensibility to difference, which is against the Parallel Law. His explanation is that the sensibility to subjective stimulation (the eye's own light) remains all but undiminished, while the sensibility to external stimulation falls off through exhaustion, and so the addition of the same amount of subjective light to the external impressions after as before the diminution in sensibility makes the outstanding difference proportionally smaller in the latter case. But it is very questionable whether internal and external stimulation are so independent; and even if they are, Fechner has yet to show how the "eye-black," as he calls it, which has been measured and found very faint, can account for differences in discriminating power exceeding 25 per cent.

Professor Wundt follows his colleague in giving a psychological interpretation to Fechner's Law, urging that "the logarithmic function is nothing more than the mathematical expression for the universal law of relativity (*Beziehung*) that controls our sensation" (*Phys. Psychologie,* p. 425). But this seems like flying in the face of the facts; for we have on the one hand a series of sensible differences, all of which consciousness declares to be the same, and on the other a series of physical differences which, the physicist declares, increase progressively according to a certain formula; and if we begin by denying the identity in the first case, how shall we believe in the progressive difference in the second? Omitting this somewhat Hamiltonian retort, we may see both the strength and the weakness of Wundt's interpretation by means of an identity Fechner has recognised between his law and Laplace's formula for the relation of *la fortune morale* and *la fortune physique*. Between these the same logarithmic function holds, while the *fortune physique* is plainly equivalent to stimulus, and the *fortune morale* to sensation. At first sight this seems to favour Wundt; but to complete the analogy we have yet to find a third term, *i.e.*, one corresponding to nervous movement, and to introduce a second formula expressing the simple proportion that must hold between some two of these three terms. Now what can this third term be but what one might call *per-centage* or rate of profit? And again, is it not manifest (1) that to produce the same absolute increase in per-centage, there must be always the same relative increase in physical fortune, *i.e.*, that the logarithmic law holds between these, the analogues of nervous movement and stimulus; and (2) that equal increments in per-centage will afford equal pleasure, *i.e.*, that the analogues of nervous movement and sensation are simply proportional. The increments of physical fortune affect the man not immediately but mediately, through their effect on his per-centage. With the one he concerns himself, the other he leaves to his steward: it is just the merging of these two into one that gives plausibility to Wundt's view. But even then if we attend only to what the man tells us of his *feelings*, we shall hear only of a first term and a common difference; not till he talks of his *francs* and goes beyond his *feelings* shall we hear of a first term and a common ratio.* An adherent of Wundt's view might reply: "Yes, but even 'first term and common difference,' supposing the first term to be continuously growing and the difference to be small, is by the principles of the calculus in itself sufficient to lead to Fechner's law." To this there is a double answer. First, we have no evidence that the first term does grow. Of the three methods of experimenting described by Fechner, that employed by Weber and known as the "method of just-perceptible difference" is the only one to which we can appeal here. Now in a series of experiments conducted on this method, the experimenter would not refer each time to the bulk sensation, so to speak, but would be ever on the alert for that just-perceptible difference he had had and recognised again and again, just as (*e.g.*) in Weber's investigations into the sensibility of the skin, attention would be abstracted from the variety of the impressions produced by the compasses on different parts and concentrated on the moments when the points were felt as two. But, secondly, the objection supposed would prove too much, for it would hold equally well of any other continuous curve besides the logarithmic. To say that what psychologists call "relativity" can only be represented by such a curve (or law) seems a bolder thing the more one thinks of it. That at any rate the law does not rest on any mere report of consciousness is shown by the language applied to it,* and by the fact that the formula expressing simple proportion is often given in its stead.†

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* Some one may object that a man who attends only to per-centage will not find equal pleasure in equal increments, that to produce equal pleasure his new per-centage must always be a constant multiple of the old one; and this objection may be repeated indefinitely. But this is much as if one said a man will find equal ("*moral*") pleasure in the increase of his ("*physical*") pleasure when the rate at which this increases is the same, *i.e.*, as if one made the old *fortune morale* into a new *fortune physique*. It is enough for our purpose if for any given stage of such a development the proposed interpretation holds.

But the matter seems set at rest when we consider the methods by which the law has been chiefly established. The directness of the method already mentioned proved to be its fault, for it was found impossible consciously to single out the threshold-intensity with sufficient exactness: the observer either overshot his mark or doubted if he had reached it. The two remaining methods, devised to obviate this difficulty, are indirect, *i.e.*, only mediately dependent on consciousness. In the "method of average error" the observer has to declare when two stimuli seem equal, his errors are then measured, and their average, *corrected by the help of the mathematical theory of errors,* is the reciprocal proportional of the observer's sensibility. Now what is it that consciousness contributes to this procedure? Surely nothing more than the uniform declaration that it has had over and over again the same sensation of equality—such as one might have (*e.g.*) in looking at the ends of pairs of perceptibly equal rods placed side by side, however the several pairs differed from each other in length. To the question, How comes it that the error is a constant fraction of the stimulus? the ready answer is: To determine this is precisely the end of our inquiry; let us not assume that it must be because a comparison has been made. Thus to recur to our sticks; each pair of these would appear to terminate together, though differing by a constant fraction, if they were placed at a distance from the eye proportional to their length, so that the angular magnitude of their difference was always the same. And just as this would be due to their position and not to the observer, so may this "relativity" between difference-threshold and stimulus be due to something not in any sense psychical. The like may be said of the "method of true and false cases," in which the difference is, so to speak, only partially excluded from consciousness (*i.e.*, is too small to be certainly distinguished), and the sensibility determined by the ratio of true answers to the whole. The observer would say, no doubt: This weight is heavier than that, or this weight is lighter than that; because he would avail himself of the simplest expression, and in every-day life we are continually comparing. But the contention is that "heavier" and "lighter" correspond strictly to a certain sensation and no more, just as blue or green does. The subject of experiment has to do only with a certain *minimum sensibile*—the common difference of the arithmetical series; the experimenter it is who notes the constant fraction in the stimuli concomitant with this. But the two things are as independent as the deviations of a balance of the total weight in the scales, nor ought they to be connected because experimenter and experimentee are rolled into one. There is, however, no trespass harder to avoid than that across the lines dividing the subjective and objective aspects, and none more disastrous to the offender.

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* Thus Volkmann, of Prague, calls it a paradox; Brentano declares that it contradicts common sense.

† So Herbart:—"In the region where the foundations of psychology lie, one may say absolutely that two candles shine twice as bright as one; that three strings at a single touch sound three times as strong as one," &c. (Werke vii. p. 358). Similarly Bain, *Logic* ii. p. 39, and H. Spencer, *Psychology* i. p. 120.

But if we decide upon rejecting the psychological interpretation in favour of a physiological one, we shall have to inquire more closely than we have yet done as to the nature of the nervous movement or central action that is to replace Fechner's "intensity of sensation," and vary in arithmetical ratio as the stimulus varies in a geometrical. An answer to this question has been proposed by Prof. Bernstein,* an answer depending on the following propositions:—(1) A stimulus-wave in its passage along a nerve-fibre remains throughout of equal strength, but (2) on reaching the centres it is irradiated, and (3) meets with a continuous resistance, which (4) is proportionate to the strength of the wave at that point. Of these in order—

(1). The first proposition is opposed to a doctrine very commonly met with (as *e.g.*, in Spencer's *Psychology*) and first propounded by Pflüger, *viz.*, that the intensity of the stimulus-wave increases as the wave advances; but Pflüger's observations have received another explanation, so that this first proposition will probably now pass unchallenged.

(2). The central irradiation or diffusion of an excitation is a physiological fact still less likely to be disputed, and anybody who has ever had severe and prolonged tooth-ache knows something of the psychical significance of this irradiation. As Bernstein puts it:—"The whole hand, even the whole arm, may ache, when the cause of pain lies wholly in a single finger, sometimes indeed the corresponding finger of the other hand will ache too,"—the centres for symmetrical parts lying near together. When we talk of the impossibility of "concentration" at such times, our language is more literal than we usually imagine it to be.

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* First in an article in Du Bois Reymond's *Archiv*, for 1868, pp. 388 ff., and again in *Untersuchungen über den Erregungsvorgang im Nerven- und Muskelsysteme*, 1871, Abschnitt IV.

(3). In proof of the third proposition Bernstein mentions:—(*a*) The diminished strength of reflex contractions obtained by stimulating a sensory nerve as compared with those obtained by the direct stimulation of a motor nerve—the difference is taken to represent the loss in overcoming central resistance; (*b*) the inhibitory action of certain centres (Setschenow's so-called inhibitory centres); (*c*) the effect of strychnia in increasing reflex action—this he explains as accomplished by a diminution of the central resistance; (*d*) the diminished velocity of central excitation; (*e*) the "stimulus-threshold," taken *i.e.* as representing the amount of stimulation needful to overcome the central resistance.

One or two points of importance connected with this list may perhaps justify a momentary digression. In the first place, the constant resistance due to the structure of the centres—which is what we have in (*a*), (*d*), and (*e*)—is evidently of a different kind from the ever-varying resistance due to inhibitory action in (*b*).* Bernstein does not find it necessary to distinguish them, but we might call the one structural, and the other functional, resistance. To the first may perhaps be referred some of the changes in the constant k that we found opposed to Fechner's Parallel Law. The second introduces us in all probability to the physical counterpart of that conflict of presentations so largely discussed by the Herbartians.

Again, it is important to notice—a thing that Bernstein has overlooked—that with a given state of the central resistance, one and the same central movement would correspond both to

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* The explanations of inhibition commonly given by physiologists, of which Setschenow's assumption of inhibitory centres may be taken as a type, seem to an outsider anything but scientific. Before assuming special centres, it seems at least desirable to ascertain whether the interference of stimulus-waves, travelling in opposite directions, will not account for everything. Being impressed with this, I have been at some pains to learn what evidence there is for such interference, and have found in a paper by Mr. Dew Smith (*Studies from the Physiological Laboratory*, Cambridge, pp. 26 ff.) an account of experiments that go a long way towards establishing the existence of such a "block," as the author prefers to call it, in nerve-fibres stimulated from two points at the same time; while an ably-written paper by Freusberg (Pflüger's *Archiv*, 1875, pp. 174 ff.) furnishes good reasons for believing in a similar interference in the centres. This writer shows that the stimulation of one centre inhibits the action of another simultaneously stimulated, and suggests that in this way the effect of two equal and opposite stimuli might be *nil* (p. 198), illustrating such interferences by cases that remind one of the ass of Buridanus. Freusberg attempts no explanation of central inhibition, but the experiments of Mr. Dew Smith might afford a very simple, though not a final explanation, *viz.* that the excitations from two different centres being irradiated, as they are known to be, the stimulus-waves along their commissural fibres come into collision.

Fechner's stimulus-threshold, and to his difference-stimulus-threshold, just as the sensation in each case is a just observable sensation. So far as structural resistance alone is operative, this threshold would be comparatively constant; but when functional resistance enters, and it is the chief resistance in natural life, the threshold for any given form of sensation would rise and fall within very wide limits. And if some one with the patience and ingenuity of Fechner or A. W. Volkmann were to institute experiments to determine these variations, the stimulus being kept constant and the attention—assumed to have an exact relation to this resistance—being variously diverted, the results would surely be more important for psychophysics than those already obtained, however interpreted. Many of the puzzling variations in Fechner's "constant errors" that strike one as especially interesting though they are so summarily discussed, might receive some explanation if the phenomena of attention were thus examined.* But in all Fechner's experiments it was a chief aim to reduce the observer for a time as nearly as possible to a uniform measuring-machine; voluntary attention was engaged solely in securing a uniform field where non-voluntary attention to a certain form of sensation should be as undisturbed as possible; one might almost say a mesmeric state was induced by one part of the subject on the other, which was kept in uniform *rapport* with operating machinery as an equatorial keeps its telescope fixed on a given star. But returning to Bernstein's hypothesis—

(4) His fourth proposition—that the loss of intensity which an excitation undergoes, as it is diffused through the centres, is proportional to the intensity of the excitation—he does not pretend to prove by direct experiment, but says merely, it is the simplest assumption one could make.† But in fact this is

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* Cf. *Psychophysik*, i. pp. 91, 92, 96, *et passim*. Fechner promised details in a separate work, which however has not yet appeared. Exner, who has been long experimenting in psychophysics, observed that it made a difference to his results if any one unusual was present in the room, or if any one watched his experiments (Pflüger's *Archiv*, 1873, p. 618).

† Some important researches on the physiological action of light commenced about three years ago by Professor Dewar and Dr. McKendrick, furnish additional and independent grounds for interpreting Fechner's Law physically; and not only so, but it may perhaps turn out that they supply the missing link in the proof of Bernstein's hypothesis. Having determined the natural electro-motive force of the eye, Messrs. Dewar and McKendrick found that on stimulating the eye with light ranging in intensity from 100 to 1, the variations in the electro-motive force ranged from 3 to 1, and in some cases from 6 to 1. Then taking account of the subjective stimulation, as proposed by Helmholtz (in a passage above referred to, p. 456, note), and indeed by Fechner himself,

not all that can be said for it: the same assumption has been made and verified in many other cases, as *e.g.*, in the conduction of heat and electricity, the absorption of light, or the diffusion of salts in solution. We have now to consider what is properly Bernstein's hypothesis,—the physiological interpretation of Fechner's law to which the preceding propositions lead.

Let us then imagine a certain sensory cell, S_0, subject to an excitation through its afferent nerve sufficiently strong to well over into the neighbouring cells, S_1, S_2, S_3, &c., which for simplicity we may suppose ranged continuously in a straight line and in one direction; and let us suppose the excitation to have had at S_0 the initial value β; at each successive cell it will suffer a loss proportionate to its magnitude at that cell, till on reaching a certain cell S_n, its value will not exceed b, Fechner's threshold-value, and beyond this point we are not now concerned with it. We have then here, it is sufficiently plain without further detail, the relations expressed by Fechner's law; but instead of γ being the intensity of a sensation it is nS, the number of cells traversed by the excitation; and the conclusion drawn is that "we estimate the intensity of an excitation by the number of central elements over which the excitation spreads." To this is appended an assumption, which is certainly gratuitous enough, *viz.*, that in each cell passed through an equal amount of energy is set free and transformed into sensation, just as in a muscle a like excitation might have set free energy which became transformed into muscular movement. Rejecting such psychology, and contenting ourselves with the physiological explanation, which is happily independent of it, we have still to consider the connection between Fechner's law so explained and properly psychical phenomena. But this carries us over to our out-

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(ch. xxv. and ch. xxxi.), and taking the value of this as found by Delbœuf, *viz.* 0·1, and in some cases 0·5, the calculated values of the variation for the range of intensity employed are for these two values of the subjective stimulation 3 : 1 and 5 : 1 respectively. There is thus between the results of these experiments and Fechner's law "a close agreement" that, as the authors say, "can scarcely be regarded as accidental." Now when we consider that the retina consists not only of terminal organs directly sensitive to light, *viz.* the rods and cones, but also of several layers of cells, and that it has even been regarded by some as, like the mis-called olfactory nerve, a central structure, there appears at any rate plenty of room for that diffusion and absorption or resistance referred to by Bernstein. Further, unless such diffusion and resistance is admitted, the experiments in question seem in conflict with the generally-accredited fact that in nerve-fibres the stimulation is proportional to the stimulus. A full account of these experiments is given in the *Transactions of the Royal Society of Edinburgh* for 1873, and a summary of them in *Nature*, vol. viii. p. 204.

standing question: What exactly is the psychical phenomenon that Fechner calls "intensity of a sensation"? The answer to this, if congruent with Bernstein's hypothesis, must be held as so far confirmatory of it.

Fechner nowhere explains with any exactness what he understands by *intensity*; he thinks it enough to say:—"When one object appears brighter than another we call the corresponding sensation intensively greater; when it appears larger than the other, we call the sensation extensively greater." But the object here referred to is what one might call the physical and not the psychical object; and it is the intensity of the latter that we want to measure. This much however we can gather from Fechner, that he would consider it essential to this measurement that as the intensity is increased and diminished the object must remain the same. A little reflection however seems to show that this is a condition that cannot be fulfilled for the psychical object. Let any one compare first two lights of feeble intensity or two small weights, and then lights and weights near the maximum limit; and though they be so adjusted that the difference of intensity, as measured by Fechner, shall at each extreme be alike perceptible, it will be found that a host of other sensations—to say nothing of images reproduced—accompanies those at the higher end, sensations roughly recognised as the stimulating effect of strong light or the strain of heavy weights, and so forth. The result is similar if we try by an increase of voluntary attention to increase the intensity of an object—a thing we seem to be able to do within limit: we find that change of intensity means also more or less change of object. It can hardly be denied, one would imagine, that the intensities of all these objects are alike contingent on the intensity of the stimulus, or effort, as the case may be, and could all these be taken into account a simple enough relation might be found between their intensity and the intensity of the central movement.

But not only did Fechner make no attempt to measure this total intensity: it is very much a question whether he measured the partial intensity to which he did attend. In fact, as a further proof of our inability *directly* to estimate intensity at all, we may note that when an excitation is really most intense, *viz.*, at its entrance into the centres, or in what may be called its initial state, we perceive nothing but a shock, and if by artificial means the excitation is immediately extinguished by a different one, as in the experiments of Baxt, we can say nothing definite as to what its intensity was. But when the stimulation is continuous the state of excitation of the central elements concerned will be very different at different intervals between the entrance of the excitation and what—from the analogy of heat, &c.—may be called its permanent state. It is to this state of course that Bernstein's explanation refers, and in all Fechner's experiments this state was not only attained but maintained for some time. In his weight-experiments (*e.g.*) the weights were held for at least two seconds—which would be more than enough to justify the statement just made—and in the other experiments an unlimited time seems to have been taken. Fechner's own language admirably suggests that what happens really accords with Bernstein's physiological explanations. In speaking of the experiments with weights, he says:—The successive apprehension is preferable to the simultaneous, in which attention passes to and fro; "what we have to aim at is to observe the weights in quick succession indeed, but still each as much as possible undisturbed by the intrusion of the other, and *to attend to their superposition only in memory*" (*Psychophysik*, i. p. 88). To explain how this is possible he leaves to the future of psychophysics, and is content meanwhile to rest on the fact. Now his procedure, under what he calls normal circumstances, was to spend a second in taking up and another in putting down the first weight, then after a second's pause to do the same with the second weight; this period of five seconds he called a double lift, and on it there followed an interval as long, during which he recorded the result (*ibid.* p. 99). The "superposition in memory" of one γ or "intensity" upon another would thus be real enough; and we may take it to mean that the second stimulus re-excited cells just before excited and not yet restored to equilibrium (hence the advantage of quick succession), but left a certain difference, which marked the change of intensity, consisting of new cells excited, or of cells unexcited a second time, according as the heavier weight was taken second or first.*

The better to see what may be supposed to take place in such a case and how far it is from giving us any direct information about intensity, let us indulge in a physical illustration. In a large enclosure kept constantly at the temperature of melting ice let there be a number of iron shot of uniform size, some of which, immediately before being placed there, had been each of a different temperature, these temperatures varying continuously from that of the enclosure up to say that of a red heat. Now owing to a physical law the same in form as Fechner's, *viz.*, that the quantity of heat lost in a given time increases in geometrical ratio as the temperature increases in arithmetical, it would result that after the lapse of a certain time the temperature of the balls would cease to furnish directly even an approximate indication as to how much heat they had at first; though it would be quite possible for some time longer to ascertain by mere inspection and with very little error how many balls had been heated at all. Indirectly, however, the number of balls must be a measure of the quantity of heat they possessed originally, since we know that their temperatures form a continuous series, but the actual measurement would be a second and much harder step, requiring also fresh observations. It is singular that Herbart had a formula expressing "the sinking of presentations" similar to this law of cooling, but it must suffice for our present purpose just to recall one's everyday experience that, while the intensity of a psychical object may all but vanish in a second, the object may continue with us for days or years. But now, though we call Fechner's P or P+D a single physical object, we cannot in strictness call the corresponding sensation a single psychical object: rather it must be considered as a group of such objects, the psychical equivalent of a number of "nervous shocks" or "neural tremors" of similar quality. On the whole then we have surely some reason to suspect that, instead of measuring the intensity of any such object, Fechner continued the stimulation till he had a maximum number of these objects presented, and then, ignoring all associated objects of a different class, mistook the extent of this group for the equivalent of the entire intensity due to the stimulus, of which intensity it could not even be an index till certain additional facts were forthcoming. In other words the mistake suspected is that the true intensity has been confused with a possible mode of estimating it, almost with our memory of the chief objects concerned in it—much as people might confound the intensity of a flood or a fire with the ground covered or the number of farms or houses destroyed.

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* It is obvious, if a given excitation produces any change of structural resistance, whether in increase or decrease, that it must make a difference which weight is taken first. Thus, supposing the resistance diminished by each excitation, then, if the heavier weight preceded, it will as it were have smoothed the way for the lighter, and their difference will be under-estimated; if the lighter weight preceded, the difference will be over-estimated. Supposing the resistance increased by each excitation, the case would be reversed. Now Fechner speaks of a manifest difference existing in series according as the intenser stimulus was first or second (i. p. 90), but most provokingly says that details would be uninteresting (pp. 186, 190), and lumps his figures together in such a manner that nothing as to this point can be deduced from them.

JAMES WARD.

III.—ART AND PSYCHOLOGY.

There is probably no region of phenomena which has received less illumination from the activities of the modern scientific spirit than the processes of the Fine Arts. This fact is unmistakably betrayed in the associations which still cling to the term *æsthetic*. To speak of an æsthetic inquiry is to the ordinary mind to refer to the densest stratum of nebulous thought. To call a subject æsthetic is to claim its exemption from a clear and searching investigation.

The proximate cause of this prevailing idea is without doubt to be found in the nature of the speculations hitherto proposed as contributions to a theory of the arts. These speculations appear to me to be among the finest examples of the sterility of the metaphysical method. So far as one can judge, they have had but little appreciable effect in making the nature and aims of art intelligible to the non-metaphysical mind, although no doubt they have been welcomed by a certain number of the lovers of art, in whose eyes they take the appearance of sublime ideas which make beauty yet more beautiful because more mysterious.

But further, the influence of metaphysics in rendering the region of æsthetics a dark and dangerous territory has not been counteracted by the attempts of critics to raise empirical rules into canons of art. Such rules commonly rest on narrow observations, and are in many cases not applicable to a larger area than a particular period of a particular national development. Even when beneath the rule thus put forward there lurks an intelligible scientific principle, this real source of value has rarely been distinctly recognised and accurately presented.

Still this control of the domain of art by metaphysics does not wholly account for the absence of all scientific conceptions of æsthetics. The hold which the metaphysical method even now retains on the biological and psychological departments of existence has not prevented the rise of a scientific conception of these subjects. It may be urged, perhaps, in explanation of this unscientific condition of art-theory, that there is something unfavourable to scientific reflection in the very nature of the artistic mind. Beauty, it may be said, must be worshipped in the delightful haze which all emotion throws about its object and which is rudely dispelled by the full vigour of intellectual action. Hence the true friends of art feel little or no interest in a scientific explanation of its processes.

To this it may be sufficient to reply that some of the greatest artists have taken part in the scientific discussion of art-problems, and that nearly all teachers of art lay emphasis on the intellectual ingredients in taste, maintaining that a discrimination and recognition of the sources of pleasure in works of art tends not to destroy but to augment that pleasure. Although a certain amount of art-sentiment when unchecked is highly favourable to metaphysical imagination—to which fact the pertinacity of the metaphysical method must in part be referred—it is happily possible to combine an ample rational admiration for art with a vigorous impulse after intellectual light. We may see this possibility fully illustrated in some of the best minds of the day. The balance between the æsthetic and the scientific disposition which modern culture tends to produce has already shown itself in a considerable concentration of curiosity on æsthetic problems. There is manifestly a keen interest in everything relating to art whether its nature or its history; and it is this fact which accounts in part for the appearance of so much shallow and arbitrary discussion of art-principles by unscientific friends of art.

Thus we seem to find the necessary conditions of scientific construction while yet this construction is wanting. If there is a deep interest in art, and a considerable direction of scientific thought to its problems, how is it that little or nothing has been done to place the principles of art on a scientific basis? The answer to this question is probably to be found by a reference to certain difficulties inherent in art regarded as a subject of scientific investigation, the recognition of which has restrained the impulse to subject this interesting region of human life to scientific control. These difficulties are without doubt real, and it is an important question whether they effectually preclude all separate scientific treatment of art-processes. Let us for a moment consider this question.

The first and most obvious obstacle to a scientific conception of art lies in the proverbial subjectivity and uncertainty of the æsthetic sentiments. It is not an accident which has coupled in so many languages the æsthetic feeling and the most subjective class of our sensations. Yet this very analogy may serve to show that there are limits to the variations insisted upon. However wide the field of gustatory experience in which the judgments of different minds are contradictory, there remains an area of approximate uniformity. To all who have the human organ unimpaired, certain things are always bitter and distasteful while others are sweet and acceptable. Similarly in the field of æsthetic experience we have never heard of any difference of opinion respecting the intrinsic pleasantness of bright colour or the intrinsic painfulness of the discord of a semi-tone. Hence just as it is possible to determine physiologically the conditions of those uniformities of pleasurable and painful experience which are to be observed among our bodily tastes, so it may be possible to fix certain general laws of æsthetic effect. And such laws would be a basis for a modestly conceived science.

Not only so, but this analogy serves to suggest that even within the region of variability comparative measurement is not excluded. We speak of a gourmet's cultivated and discriminating taste as superior to that of a plain man whose experience is limited to a few homely sensations, and this mode of speech is not to be explained by saying that the men who thus speak and write are themselves among the gourmets, for this is not always true. A reflective man whose own sensibility for the gradations of flavour in wine is but little developed, will admit that his experienced friend is far more competent than himself to speak on a question of a new bouquet. Just so we see that among æsthetic judgments a certain order is commonly spoken of, even by many of those who do not possess them, as superior to the rest, whereas there are other orders which are never thus extolled except by a few dogmatic possessors of them. Hence it may be possible to disentangle from the chaos of æsthetic judgments which presents itself on a *primâ facie* view of taste, not only a number of general principles rendered objectively valid by uniformity, but also an acknowledged standard of measurement for the variable elements in the æsthetic process.

The second objection to a scientific treatment of the æsthetic feelings and art comes from a different class of minds. The attempts, say these objectors, of critics in ancient and in modern time to fix conditions of æsthetic effect have signally failed. Even so great an intellect as Aristotle was inadequate to the determination of all the resources and capabilities of poetry, and it may be doubted whether Lessing, *facile princeps* among modern critics, recognised the scope for the representation of many-shaded character to which painting may rightfully lay claim. The discoveries of creative genius, it is argued, have ever and again set at nought the barriers laid down by self-constituted æsthetic legislators. Think, for example, of the outcry made against Monteverde's introduction of the discord of the dominant seventh—a discovery which served to give clearness and definiteness to our modern system of key. The artist so far from being limited by the known conditions of æsthetic effect has to discover those conditions for us, and the whole progress of art illustrates the indeterminateness of æsthetic susceptibility.

So far as this objection is directed against hasty and narrowly conceived legislation in æsthetic matters, it is, I conceive, unanswerable. *Ars longa, vita brevis* has its application to all attempts to theorise on art, not less than to all attempts to compass it in original production. None of us, and no number of us in combination, can foresee the future movements of artistic creation and the undiscovered emotional susceptibilities which will thus be opened up to view.

At the same time one does not see how this can be a hindrance to æsthetic construction of the limited range which is here claimed for it. To proclaim the existence of an indeterminate unknown in æsthetic delight, may rightly be regarded as one part of a just æsthetic science. The recognition of the incompleteness of our knowledge of the possibilities of art does not invalidate our plea for a scientific foundation to art, provided it is possible, first of all, to lay down certain universal conditions which must hold good for all future developments of art, no less than for all past, and, secondly, to reach some standard of measurement by which any future discovery of genius may be gauged.

The third difficulty urged against any proposed construction of æsthetic science springs from the close connection of art with social conditions and historical development. The processes of art, it is said, together with the æsthetic sensibilities with which they are correlated, are very much a matter of historical production. Principles of taste and canons of art which apply to a particular nationality in a particular period, are wholly inapplicable to the rest of mankind. Art, like the artist, is not made by immediate external influence, but is born of the historical antecedents. You cannot introduce a passion for art into a national medium which is unprepared for it. Art thrives and grows just in proportion as social development as a whole progresses.

It is obvious that this objection is applicable not only to a proposed theory of art but also to other projected sciences, such as political economy and ethics. For industrial phenomena and the facts of the moral consciousness are largely controlled by variable social conditions. The point of the objection disappears as soon as we recognise the abstract and consequently limited nature of the proposed science. It is perfectly true that the operations of the æsthetic impulse are partially controlled by the social conditions of the country and age. Further, it may be admitted that æsthetic progress is largely determined by the same influences which account for social evolution as a whole. Still it seems possible to deal with the processes of art, as the economist deals with those of industry, by making abstraction of these influences. The aim of æsthetics might accordingly be said to be to give an account of the nature and the growth of the artistic impulse in so far as it can be regarded as a separate factor in social activity and progress.

In meeting these natural objections to a scientific view of art, we have been drifting, so to speak, to the conclusion that the true and only available method of dealing scientifically with art-problems is the psychological method. By this I mean an appeal not only to the study of mental operations by individual self-reflection but also to the newer inquiries into the laws of mental development in the race, and of the reciprocal actions of many minds in the social organism. It is only by interpreting psychological science in this *extended* sense that we can make it an adequate basis for a theory of art. For the effects of art belong, as I have already hinted, to the more complex and consequently variable phenomena of the human mind, that is to say, to phenomena which involve the more intricate and subtle influences of social contact, and which present numerous and wide fluctuations, answering to the many distinguishable stages of a society's intellectual and moral development.

The manifold relations of art to the science of mind would seem to be sufficiently evident. It does not require a very profound knowledge of psychology to recognise that all searching and reasoned criticism goes back to the very confines of this science. One might almost say that every far-reaching critic is an unconscious, if not a conscious, psychologist, and this relation has never been illustrated more clearly than in the case of Lessing. Whether the question be as to the capabilities of poetry in representing the co-existences of the visible world, or as to the legitimacy of introducing the painful in immediate objective presentation, he always touches on principles which are *axiomata media* in psychological science. A critic who has principles which he understands is one who aims more or less distinctly at connecting the rightness of art with certain fixed conditions of human emotion.

Is it not remarkable, then, that so little has been done by writers on the theory of art to ground their systems on a firm psychological foundation? In England and in France the relations of art and psychology have no doubt been fairly perceived by more than one writer, but these have generally been concerned only with certain aspects of beauty or of art. On the other hand, in Germany, where the construction of elaborate systems of æsthetics has almost grown into a traditional accompaniment of a professorship in philosophy, writers have shown a singular ability in overlooking the psychological roots of art.

Most of them seem to have been so deeply engaged in seeking a transcendental formula for beauty and the creative process of art as to lose sight of the obvious consideration that, since beauty recommends itself only by a peculiar effect on our minds, we may best study its nature by examining into this effect, and that artistic creation being a mental process can only be understood in the light of the universal conditions of mental activity. Even the Herbartians, with whom psychology takes a front place, and who have recognised most clearly the dependence of æsthetic truths on psychological data, have occupied themselves mainly with but one side, though an important side, of art, namely, the laws of formal beauty.

It is not meant here that the whole of the doctrine of art naturally falls as a body of derivative truths under psychology, even in the extended sense which has just been given to the term. For one thing æsthetics is a practical science and as such postulates a certain end as self-evident. Discussions as to the final end of art cannot be settled by psychological principles but at most by an induction from the facts of art or by an appeal to individual intuition. The place of psychological principle in æsthetics is much the same as in ethics. In both some final good is assumed, and psychology only assists us in determining the conditions requisite for securing this end.

But further, psychology does not even supply us with a criterion of all of these conditions. We may see this both in ethics and in æsthetics. Supposing the utilitarian standard of moral right to be adopted, then the test of every ethical rule is that it serve to promote the general happiness. Now whether any given line of conduct is fitted to further the happiness of others may be known partly and mainly by considering the nature and immediate conditions of pleasurable sensibility, that is to say, by a properly psychological inquiry. So too the question how a given law is likely to influence men's reciprocal behaviour, which is another necessary ingredient in the inquiry, can only be solved by taking into account the laws of human action, that is again by a reference to psychological principles. But the results of conduct with reference to others' welfare involve extra-mental processes as well. If, for example, the question relates to the wrongness of hasty marriage in a fully populated country, one will need to include in the calculation, along with a good many moral facts, the important physical fact that the means of subsistence are not indefinitely expansible except by greater and greater additions of labour.

It is much the same in æsthetics. Psychology may supply the artist with the *proximate* conditions of his effects; it may give him a reason why he should seek a certain disposition of colour or a certain unity of emotional effect if his work is to delight. But beyond this there are various material processes, such as the modes of combinations among pigments, or the changes in tone consequent on variations in the manipulation of a musical instrument, which, though they are the *remote* conditions of the final pleasure, illustrate physical and not moral laws. All such conditions of æsthetic effect fall under the special *technical* matter of an art.

The capabilities of psychology in relation to æsthetic problems are twofold. First of all, it can supply within certain limits a distinct scientific basis for the solution of these problems. Secondly, it is able to determine when the problem is in its nature insoluble, and to show why this is so.

First of all, then, psychology provides us with a certain area of firm objective principle for the construction of art-theory. It may do this in one of two ways, either by laying down definite laws of emotional susceptibility or intellectual activity which apply to the effects of all art from its crudest to its most cultivated stage, or by determining the nature and origin of some particular mode of æsthetic feeling. Let us illustrate each of these processes by an example.

Suppose the question to be the exact relation of art to morality, and more particularly whether good art is capable of exercising a bad moral influence. Nobody doubts that a man may produce something which has the form and some of the characteristics of a work of art, and which, at the same time, is thoroughly immoral in its influence. A poet may choose to extol an ignoble type of sentiment, or a painter to beautify subjects drawn from the lower and sensual region of human life. But the question still remains, does not this moral blemish constitute at the same time an artistic blemish? To answer this question we must clearly go back to some fundamental conception of art. Now psychological inquiry, taken in the large sense indicated above, tells us that art is essentially the production of a social and not a personal gratification, that it can only appeal to emotions which are common to society and which moreover express themselves in mass, that is, in a public and sympathetic form, and that since no immoral, that is, anti-social sentiment can permanently utter itself in this concerted form, art has to avoid the immoral as one branch of the inartistic.

In not a few cases this kind of reference to psychological principles serves to show that opposing æsthetic ideas have each a measure of validity, and that the truth of the matter is to be found in some higher conception which embraces and reconciles these. Take for example the question so warmly discussed of late whether the arts of expression, poetry and music, are absolutely bound by the conditions of beauty of form or whether, on the other hand, they need concern themselves only with a fit and forcible utterance of various emotion and observe the laws of form only so far as this subserves the expression. It does not require very extraordinary critical insight to make one suspect that each of these extreme views of the function of form in art is erroneous, though it is only careful psychological reflection which can help us to determine where the error lies. First of all the psychologist would have to examine into the sources of the æsthetic value of external form, and in so doing would need to consider, on the one hand, the organic basis of equal rhythmic distribution of impressions in the structure of the sensuous organs and in the laws of nervous action, and, on the other hand, those influences which have slowly fostered in the developing mind of the race the instinct for a uniting order in its objects of perception. In the second place he would have to take into consideration the natural psychological relation of ordered form and emotional expression, by which I mean the way in which rhythm of movement spontaneously associates itself with the utterance of feeling in common life. By a combination of these two lines of investigation he would probably arrive at the conclusion that, while form has a worth of its own quite apart from the emotional content which has to be conveyed through it, it cannot be realised in the same degree of distinctness and completeness in the case of all orders of emotional expression. Not only does the form need to bend and mould itself to the nature of the material, the material may be of such a kind as to resist all pressure into a symmetrical mould. In this way he would find a justification for those occasional departures from the fixed laws of rhythm and melodic arrangement to which modern poets and musicians resort when they have to represent either a comparatively formless emotion, as anger, or an intensity of passion which by its very violence defies the restraint that is inseparable from all order.

My next illustration shall be a narrower problem in æsthetics, namely, when and under what conditions the ludicrous may be introduced with advantage into tragedy. That the same circumstance, the same human action, may be at once profoundly pathetic and irresistibly amusing is a sufficiently trite remark, and so far as this is true the combination of the two effects in art is of course justified, if art is to be a faithful reflection of reality. But beyond this the grotesque and the amusing is sometimes studiously introduced as a subordinate element in a truly tragic impression. Not to give illustrations from the great dramatic master of this device, one may refer to the uncouth chit-chat of the countrywomen introduced by Mr. Tennyson at so serious a moment in his tragedy of *Queen Mary*, or to the amusing actions of the unwatched children in Mr. Fildes's strikingly pathetic picture, *The Widower*. I am fully aware that there are numerous individual differences of feeling even among cultivated persons as to the legitimate extent of these combinations; yet it seems generally allowed that the effect is sometimes a right one, and the question arises how can this apparent interruption of the harmony of art be justified. The answer to this would involve a consideration of the circumstances which render feelings compatible and incompatible, of the action of relief and contrast in emotion and so on. This line of inquiry would conduct us not only to some of the profoundest truths in the psychology of the individual consciousness, but also to scarcely less important doctrines in the psychology of the race, such as the effects of permanent or frequent connections among the experiences of mankind in establishing a certain facility of transition between the corresponding emotions.

We may now turn to an illustration of the other mode of psychological solution in æsthetics, namely, the reasoned appreciation of some particular development of art, by an inquiry into the nature and origin of the feelings concerned. Suppose the question to be: how are we to estimate the elegiac element of modern art, that touch of melancholy that tinges our lighter and comic arts hardly less distinctly than the more serious departments, and which manifests itself with special distinctness in music, the modern art *par excellence?* It is easy to reason according to the geometric method from some first principle of art, as, for example, that the aim of art is pure delight, against this infusion of sadness as something morbid and wrong. But the method supplied us by the laws of mental evolution serves to check so hasty an inference. It will be conceded that art has to seek its effect of perfect delight by recognising the great and comparatively permanent emotional instincts and habits of an age. Even granting that the mixed moods of tender regret and of vague longing to which modern art so frequently appeals contain a thinly disguised element of pain, yet if these modes of feeling are not the affectation of a fleeting passion or of an insignificant coterie, but deeply fixed habits of the modern mind, art will not satisfy unless it allows for these factors. The solution of this last inquiry must clearly be found in the truths of mental evolution as illustrated in history, such as the influences of progressive intelligence respecting the world and its laws on imagination and on feeling, and the tendency of growing reflection to limit the naïve gaiety of the primitive world.

In ways like this then a knowledge of the human mind, its invariable laws and its progressive developments, will enable us to solve questions concerning art which otherwise would seem to be unsusceptible of definite answer, and to supply clear objective reasons for opinions which else would represent merely the varying and capricious moods of individual belief. Let us now turn to the second great function of psychology in the domain of art-problems, the elimination of those inquiries which in their very nature are practically insoluble.

When young people begin to have opinions on art they fondly imagine that there is some simple standard of measurement by which the relative values of all productions may be at once settled. The readiness to dogmatise on the rightness and wrongness of a certain style, on the superiority of this or that artist springs in part from a not wholly ignoble craving for definite beliefs. It is the result of many a painful intellectual acquisition that we come to recognise the narrow bounds of certain cognition. Many persons who have had a long acquaintance with art never quite lose this impatience of curiosity, and current criticism offers many illustrations of an undue eagerness to affix some precise quantitative signature to every new production and producer.

The true solvent for this excessive love of quantitative determination in matters of art is psychological knowledge. This at once teaches us that human nature is a highly modifiable phenomenon, that there always have been and will be innumerable diversities of individual sentiment. It tells us further that those in whom a particular feeling is highly developed will certainly magnify the corresponding object, while those in whom it is comparatively feeble will disparage this object. Once more it shows us that, even when two kinds of emotional susceptibility co-exist in the same mind, our standards of subjective measurement never allow us to determine exactly the ratio of the quantities of pleasure belonging to the two. By the inculcation of such wholesome truths psychology brings an effectual check to bear on our natural disposition to weigh and measure the objective value of everything æsthetic. And thus it comes to pass that one only moderately trained in psychological reflection will smile when he hears people seriously trying to fix the relative value of two schools of art which appeal to quite unlike and therefore incommensurable orders of sentiment, and possibly to varieties which belong to different periods of mental evolution.

Another way in which the excessive quest of the definite and the certain in matters of art manifests itself is in hasty attempt at æsthetic legislation. Rules of art are without doubt useful and necessary, and some of these repose on a sure foundation of biological and psychological principle. But teachers of technical theory are commonly prone to take all the rules which are observed in their time, or which have had the sanction of a certain amount of authority, as resting on eternal and unchangeable principles, and in this way maxims which have a real value within narrow limits are raised to the rank of universal axioms of art. The history of musical theory illustrates in a remarkable way the follies of this precipitate mode of legislation. Even now it is common for musicians to lay down rules of composition which are frequently violated by the highest authorities, apparently on the understanding that the freaks of genius are wholly unconditioned by the laws of æsthetic effect. Much the same may be said with respect to the treatises on colour-harmony. Hasty inductions drawn from a narrow area of art-history are erected into general principles, in the face of abundant contradictions.

Here again the best corrective, in conjunction with a patient study of the facts of art-history, is psychological reflection. It is only the mind which is deeply impressed with the great variability of human sensibility which will fully appreciate the many possibilities of art, and as a consequence recognise the full absurdity of these narrow generalisations. If artists were always seeking after some one kind of emotional effect this sort of legislation might be justified. But each art has a wide and indefinite scope of operation answering to the many diversities of human emotion, and a rule which very well formulates the conditions of one mode of gratification may be quite invalid when applied to another kind of aim. To take a simple illustration. Writers on colour frequently talk about contrast and harmony of tint as though they were much the same thing, or at least as if they were invariably to be secured by the same means; the truth being that harmony and contrast in colour as in other elements of art are opposed and mutually limiting principles answering to quite dissimilar modes of feeling, and that every painter may make either the one or the other prominent and dominant according to the particular shade of emotional effect aimed at.

It may be supposed that to concede the existence of so large an area of the indeterminable in matters of taste and of artistic production is to allow the impossibility of a science of æsthetics. This difficulty has already been met in reviewing the preliminary objections to æsthetic theory, and it only remains now to show how the psychological method introduces an element of objective certainty even into this seemingly chaotic region of phenomena.

It may be observed first of all that while psychology insists on the relativity of æsthetic impression and of its correlate artistic aim, it is fully capable of explaining every single result when once the particular social and individual data are obtained. Even the most variable æsthetic phenomena, for instance the impression of the ludicrous, which varies indefinitely with national character and individual temperament, illustrate a psychological process, and consequently certain general laws of mind. In point of fact the full explanation of any single artistic effect involves a universal rule, on the supposition that certain modes of sensibility were invariably present. Thus psychology can show why any form of art which is capable of producing a favourable impression under given conditions is relatively right.

But this is not all. If we interpret psychology as including the theory of mental evolution, it may assist us in determining the greater and the less, the superior and the inferior, among artistic results. Up to a certain point indeed collected subjective reflection may arrive at such quantitative determinations, and this consensus of judgment may be corroborated by the consideration of objective conditions of degree in pleasure. But beyond this the psychology of evolution supplies us with a method of comparing different kinds of æsthetic gratification, as well as their accompanying artistic forms, which is applicable in cases where the agreement of individual judgment is less distinct. As I have elsewhere dwelt on this point I need not enter into it fully in this place. Suffice it to say that the very principle of evolution implies a growth and so an expansion of faculty, that the æsthetic faculty conforms to the same laws of growth as the rational or the moral, and that by finding an expression for the precise law of this growth we may arrive at a standard of value in artistic judgment. A complete rationale of the process of æsthetic culture as seen in the individual and in the race would furnish us with definite æsthetic principles, by the help of which as much quantitative determination might probably be attained as can reasonably be looked for in a moral science, and as much as would suffice for most practical purposes.

James Sully.

IV.—BOOLE'S LOGICAL SYSTEM.

On being first introduced to Boole's *Laws of Thought* a good many years ago, the impression left on the mind of a young man who had read something of mathematics, but next to nothing of philosophy or logic, was mainly one of bewildered admiration. It appeared to him as if he had had put into his hands the key of all knowledge. A few symbols were arranged; processes were performed on paper, some of which had, and some had not, an analogy to what goes on in the mind when thinking, and a result was reached, and finally interpreted, which it did not appear could ever have been attained by the natural and unassisted functions of thought. The analogy of astronomy and other mathematico-physical sciences then suggested that there might be vast regions of knowledge awaiting discovery, and which would soon be got at deductively; and that hence a general march forwards along the whole line was imminent, leading to results comparable with those which the older and more special calculus of mathematics had given in the hands of Newton and his various successors.

Dreams of mental conquest by such means as this are of course soon dispelled by reflection and experience. One quickly gets to realise how short and simple the deductive processes generally are, in which logic can directly help us, and how tedious and complicated are those preliminary processes of attaining data, in which logic can merely give an indirect assistance. But the real nature and aim of such a symbolic system as this of Boole seems still very far from being understood. There have been, it need not be said, a number of thinkers who have thoroughly mastered it, and several have made modifications more or less important in his methods; there have also been syllabuses of it drawn up, apparently for the benefit of those who prepare, or cause to be prepared, for examinations, or in order to fill up historical sketches of recent writers on logic. But after some search I have altogether failed to find anything that could be called a critical account of his method and object. This absence of appreciation is to be regretted, for whatever may be the shortcomings of his system, there can be little doubt that for boldness, originality and ingenuity, it stands quite alone among recent improvements of Formal Logic. The renewed interest lately directed to this subject by the works of Professor Jevons seems to show that an attempt such as the present is by no means out of place. The limits of an article are quite insufficient to give a full account of Boole's work, even to those who possess some preliminary knowledge of the nature of symbolic notation;

but it is hoped that for readers who start with that advantage enough may be done to bring out clearly the characteristic features of his system.

The prevalent notion about Boole probably is that he regarded logic as a branch of mathematics, that in fact he simply applied mathematical rules to logical problems. This is a very natural mistake, and indeed an almost inevitable one on a merely slight perusal. There are three prominent characteristics of his system which have contributed to this view.

The first of these is his doctrine of "expansion" or "development" of a "function." Every reader knows the prominence of these terms in his system. He obtains and states his law of expansion in so intensely mathematical a fashion, that one is quite blinded at first as to its real nature. Indeed some trouble is demanded in order to see now readily it can really be stated and grasped, and how familiar to logic is the germ out of which it is obtained. This "expansion" is in fact nothing but a sort of algebraical generalisation, or rather a generalisation suggested by the processes of algebra, of the well known law of Excluded Middle. Every reader of the ordinary logic as treated by Hamilton and Mansel is familiar with the statement that a thing must be either A or not-A. This dichotomous form is the simplest to which it can be reduced. But we might just as readily, if we pleased, start with the statement of *four* alternatives, by saying that a thing must be either A and B, A and not-B, B and not-A, or not-A and not-B. This comes, of course, of taking into account two considerations, A and B, instead of one only, *viz.* A. If we take three considerations, we get eight possible alternatives, and so on, the number doubling every time.

Here then is a formal, an *à priori* condition, which we know cannot in any case fail to be satisfied. Whatever class of things can exist, it must be capable of being split up into a number of sub-classes determined by this formula. These classes being mutually exclusive and collectively exhaustive, nothing is counted twice over and nothing is omitted. It should be remarked that this process is so purely formal that the characteristics by which the divisions are made need not even be given in the original expression. The A and B which we use as dividing factors need not have more than a hypothetical reference to that expression. In other words we are not concerned with a material division like that, say, of Europeans into English, French, &c.—a division which experience shows to be appropriate and correct: what we have is rather an assignment of *partitions* into one or another of which all the things can be put, than of bundles or groups of known things themselves. Being thus a purely formal assignment of partitions, it may well happen in any given case that one or more of the partitions thus assigned will prove to be in reality unoccupied. The actual may fall short of the possible. But here of course we step out of formal considerations into those which are material. We must therefore have some kind of data to correct, or rather to limit, our necessary but hypothetical scheme of division. How are these data or conditions to be obtained on Boole's system? Here, as elsewhere, they are given by the premisses of our argument. These premisses put material conditions or limitations on the purely formal considerations which have just been stated, and lead us in fact to all the conclusions which the argument admits of. It is very important, I think, thus to keep the material and formal considerations clearly distinguished from one another, because in Boole's actual treatment of the subject the two are very much mixed up together; so much so, indeed, that many readers may go through his book without understanding the nature of the processes he employs.

As Boole states his formulæ, they have, it must be admitted, an exceedingly different appearance. The intensely mathematical dress in which he clothes them makes them hardly recognisable as offspring of a familiar logical stock. For one thing he never speaks of dichotomy or division, but of development or expansion. But this is little more than a matter of phraseology. Take his well known formula of expansion, so familiar to every one who has read anything of his book:— $f(x, y)=f(1, 1)\,x\,y+f(1, 0)\,x\,(1-y)+f(0, 1)\,(1-x)\,y+f(0, 0)\,(1-x)\,(1-y)$. So put, it does not seem to bear much relationship to Hamiltonianism. And yet it is, I am convinced, nothing more than a combination of the above mentioned formal and material considerations, stated indeed in a decidedly generalised form. It involves the statement, put into a possibly suitable and convenient but by no means necessary mathematical form, of the fact that a given* class is hypothetically divisible into certain four sub-classes, and that such and such of these classes will be found to be occupied, and such and such unoccupied. The four terms involving xy, $x(1-y)$, $(1-x)y$, $(1-x)\,(1-y)$, are representative of these four classes. The factors of these terms ($f(1, 1)$ $f(1, 0)$, &c.) are statements of the presence or absence of occupants of these classes under the circumstances assigned by the data.

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* This $f(x, y)$ is indeed a good deal wider than anything contemplated in logic, for the left side of the equation need not, as it stands, represent a logical class, or indeed anything interpretable in logic; this is noticed further on, in the discussion of the third characteristic of Boole's system.

An example will serve to make this plain. Let us begin with a symbol as expressive of a logical term or class. Take, for instance, $1-xy$. This stands for "all that is not both x and y." By expansion we obtain (putting in the numerical values of the factors of the successive terms) $0\,xy+x\,(1-y)+(1-x)y + (1-x)\,(1-y)$. The first term of course disappears, and the final result tells us that the expression $1-xy$ is identical with $x(1-y)+(1-x)y+(1-x)\,(1-y)$. What we have here done is clearly to substitute for the original expression another equivalent form which states it as the sum of a set of mutually exclusive alternatives.

But, it may be asked, what is the object of this process? Is it not an advantage rather than otherwise to have an expression couched in the shortest compass? If a given class can be expressed in two terms, $(1-xy)$, what is gained by developing or partitioning, it into three, with the intimation that there is also a fourth compartment into which however, as it happens, none of it falls? The advantage will become plainer if we take the next step, and consider the meaning of an equation. We will take as simple a one as possible, by equating the symbol just mentioned to zero, $1-xy=0$. Expand it as before, and we have $x\,(1-y)+(1-x)\,y+(1-x)\,(1-y) = 0$. The equation, as it stood, asserted that there is nothing which is not both x and y; as expanded it leads to the three separate assertions that there is nothing which is x and not y, nothing which is y and not x, and nothing which fails to be both x and y. Doubtless common sense could have seen and said as much, but then the logician who proves the mortality of Socrates from his manhood, coupled with the fact that man is mortal, can hardly raise this objection, unless he means to imply that his own rules would do it as well in this and other cases—a point which is discussed further on.

Besides its extreme simplicity this example is merely one of "immediate inference." The full power and peculiarity of the method only begin to appear when we start with a group of propositions; inquire whether they are self-consistent; and, if so, demand an orderly and methodical consideration of every pair, and upwards, of relations which can arise out of all the subdivisions of the alternatives given by the various class-characteristics which they involve.

The next characteristic to be noticed now, as playing a considerable part in Boole's system, is the so-called process of "elimination." This employment of the mathematical phrase seems to me on the whole ill-advised, owing to the very slender analogy between the logical and mathematical processes. In each case, no doubt, a term disappears from the result, but the meaning and consequences of its disappearance are altogether distinct. In the domain of logic this so-called elimination is really nothing else than dropping part of the connotation of a name. If men are rational mortals it is quite clear that they are mortals; this is the truth though not the whole truth. Expressed in terms of denotation this is merely to say that what lies within a narrower class lies also within any broader class which includes that narrower one. Elimination in logic is dropping part of the meaning of a name when we are dealing with names, or part of the assertion contained in a proposition when we are dealing with propositions.

Here, as before, the simple nature of the process itself is somewhat disguised by the peculiar and intensely mathematical appearance of the formula as it is actually given by Boole. As he puts it, when we want to eliminate x from any expression involving x, say $f(x)$, we have as the result $f(1)\ f(0) = 0$; that is, x is to be successively put $= 1$, and 0, the two factors are to be multiplied together and the product gives the result of elimination. Let us take a somewhat more concrete instance and the meaning of the operation will come out plainly enough. For example, $x = a + (1 - a)\ c$; which may stand for "Free passengers (x) consist of children (a) and adults employed by the company $(1 - a)\ c$." Suppose we were asked to "eliminate" c. Putting $x - a - (1 - a)\ c = f(c)$, replacing c successively by 1 and 0, and multiplying the results together, we have for the formula $f(1) f(0) = 0$ in this case, $a\ (1 - x) = 0$, or its equivalent, $x = a + v\ (1 - a)$. Interpreted, this means "Free passengers consist of children and an indefinite number (we know not what, v) of adults;" from which statement, of course, the reference to c, or "employment by the company," has disappeared. Now look at it logically. Had we been asked to get rid of the expression "employed by the company," that is to make our proposition so much wider and vaguer, but no more, as is implied by dropping all reference to this characteristic, we could merely have said "Free passengers consist of all children and *some* adults," which is equivalent to the former proposition, as obtained symbolically.

This point has been pretty fully commented on, because it seems of real importance in the theory of the proposition. To my mind it strongly confirms the view that the proposition does not so properly represent an equation, as the inclusion of objects within a class. Hence the "elimination" does not give us anything really corresponding to what we usually get under that name in mathematics, but rather refers the object to a broader class, that is, drops some of its characteristics. This is doubtless an important process, and one which we constantly want to perform in thought, but it is surely questionable whether we ought to give it the name of elimination.

The foregoing remarks will serve to introduce the reader to the nature of the characteristic processes of Boole's method (of their power we will say something presently). They are at bottom logical, not mathematical, but they are stated in such a highly generalized symbolical form, and with such a mathematical dress upon them, that the reader (if individual experience is any guide) may work through them several times before the conviction begins to dawn upon him that he had any previous acquaintance with them. The inquiry cannot but suggest itself (though we know not how it could be definitely answered) whether Boole got at them by a logical path; that is, by generalising the simple logical conceptions in question, and when he had clothed them in their highly abstract symbols pulling down and throwing away the scaffolding which had led him there; or whether he began with pure formulæ, and manipulated and conditioned them until they could fairly represent the rules and results of processes of thought. We suspect the latter.

The remaining characteristic which we have now to notice is not so much a method or process which Boole employs, as a general postulate which underlies his whole system. It is the most distinctive of all, and serves, we apprehend, to differentiate his scheme from those of all other writers. It consists in the boldness, not to say audacity, with which he carries on his processes through stages which have no logical or other significance whatever—that is, which admit of no possible interpretation—provided only that they terminate in an interpretable result. This is a common enough step in mathematics, but it appears a daring innovation in logic. Recur to our former expression $x = a + (1 - a)c$. Here each term, and the aggregate of terms, represents a logical class, and is therefore interpretable, as it stands. But suppose we go on, as we should in algebra, and conclude that $a = \frac{x - c}{1 - c}$. We are landed at once in an expression which is as absolutely destitute of significance as $\sqrt{-1}$; more so, if that be possible—for the process of division has not had any vestige of logical meaning assigned to it, whereas the extraction of the square root of a negative quantity is merely an attempt to carry out a rational process in, so to say, a specifically impossible case. Boole, however, resolutely goes at it; he treats these expressions like any other, for his formula of "expansion" had a symbolic and therefore general proof, not a rational and limited one. When the above expression is so expanded we get the result

$a = x(1-c) + vxc$. This is a perfectly interpretable result, and may be read off—"Children consist of all free passengers who are not employed by the company, and an altogether unknown number who are so employed."

If it be asked whether, and how far, such a step is capable of being justified, it is difficult to know what to answer, and obviously impossible to vindicate an answer except in an article devoted to the purpose. Perhaps in the present state of knowledge about the nature and working of our mental faculties no decisive answer could be given. Boole justifies himself by maintaining that a single valid employment of such a step enables the mind to recognise it as intuitive and axiomatic.* Most minds, however, I apprehend, will put their main reliance on the analogy of mathematics, at any rate until they have become somewhat familiarised to the new field of similar experience. Every reader, even of trigonometry, knows how large a use may be made of unmeaning symbols, such as $\sqrt{-1}$. One soon grows confident in their safe use within certain limits; beyond such limits the confidence of most persons, I apprehend, will need the occasional support afforded by some kind of contact with experience.

Turning from the discussion of the originality and other characteristics of Boole's system to the general question of its power, that is, of what it enables us to do, we get on to somewhat debated ground. I would content myself with the remark that systems such as his do seem to be of real and considerable service, prominently in respect of *discovering* relations between propositions and terms.† This is quite compatible with admitting that probably nothing can be done by these methods which could not equally be done by the old method; nay, it is possible that the rules of the old logic (as the editor of this journal has recently urged) may occasionally be the more compendious in getting at their results. He took (MIND, No. II.) one of Professor Jevons's most intricate examples, and showed that in that case, at any rate, a briefer solution might be obtained by the old methods. Such a test as this however does not seem to me quite decisive of the merits of the case, unless indeed one stringently confines the functions of logic to the statement of methods and results as distinguished from the process of attaining or discovering them. I apprehend that though a known solution may often be more briefly stated by the old methods, yet nevertheless a practical acquaintance with some such system as that of Boole will frequently confer a great accession of power and facility in what may be called (within its narrow range) originative work. These symbolic methods, by their systematic subdivision of all possible alternatives, and their regular orderly methods for treating every one of these in turn, keep the attention directed to every quarter alike; they thus enable us to feel sure of not merely having *an* answer (which may sometimes be easy enough) but of having got *every* answer of which the data admit.

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* "A single example of reasoning, in which symbols are employed in obedience to laws founded upon their interpretation, but without any sustained reference to that interpretation, the chain of demonstration conducting us through steps which are not interpretable to a final result which is interpretable, seems not only to establish the validity of the particular application, but to make known to us the general law manifested therein." (p. 69.)

† It should be understood that I am merely regarding the equational form as one in which a proposition *may* be expressed, and often with convenience. I quite agree with those who deny that this form can be regarded as the proper or primary one, philosophically viewed.

This seems a natural prerogative of mathematical methods in most directions. Take the simplest case. Set an untrained person to find all the words, significant or otherwise, which can be made out of the word ROME, and the odds are that he will not find more than a portion of them. But any one who had once looked at the theory of Permutations would write them all straight off in a minute or two. Very possibly the old logic can do all that these symbolic methods can do, but then has it not, for that matter, to admit that all that *it* can do can be done even by unassisted common sense? The operations of reason are at bottom the same however we may aid or express them by formulæ and symbols. When premisses and conclusion are given common sense mostly goes right, but it fails occasionally from not knowing the likely sources of error and the technical terms expressive of them. Just so when no premisses are definitely given, but rather an assemblage of propositions, and we are directed to say generally whether they are consistent or redundant, and to ascertain *all* the distinct conclusions that can be drawn from them, it is found that the rules of the old logic do, as a fact, fail in the hands of all but those who are unusually acute in such matters. To specify but one of these points: Boole shows how we may ascertain whether a given system of propositions are independent of one another, that is whether it is possible to deduce from any portion of the system a conclusion deducible from any other portion of it. This is surely an important consideration to all who study accuracy and brevity of statement. It would be an element, as Boole says, in the attainment of a perfect language or medium of expression. So far, however, from most persons having any idea how to set about ascertaining this, they probably have but a very hazy and imperfect conception of what it is that has thus to be ascertained.

But perhaps, with most minds, a simple test from experience will carry more weight. An easy example,* of the kind mentioned above, was proposed, in examination and lecture rooms, to some hundred and fifty students, as a problem in ordinary logic. It was answered by, at most, five or six of them. It was afterwards set, as an example on Boole's method to a small class who had attended a few lectures on the nature of these symbolic methods. It was readily answered by half or more of their number.

A complaint sometimes urged against Boole's methods is that they are excessively cumbrous and tedious, requiring whole pages of symbols before the answer is obtained. This charge cannot be altogether denied. Some of this tediousness is inseparable from the object aimed at, *viz.* the consideration of all the relations between the various terms in question. Every one knows how lengthy and troublesome any but the simplest questions in Permutations and Combinations have a tendency to become. The complaint, however, partly hits a merely personal blemish. Boole cared apparently much more to show the power and completeness of his rules, than their handiness in actual working. He has not troubled himself to notice various devices for getting rapidly at results which might be readily adopted if his system were brought into practical operation. It is surprising to find what a very great simplification may sometimes be made when only *certain* answers are wanted, instead of *all* the answers to which the problem leads. This could only be adequately shown by introducing an array of symbols hardly suited to the pages of this review; but it can be indicated by a few lines of work, which those who care rather for principles than for details may at their pleasure pass over.

For instance, in discussing the definition of wealth given by Senior, "Wealth (w) = things limited in supply (s), transferable

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* The example (got originally by the aid of Jevons's Method, as described in his *Lessons on Logic*) was this :—"The members of a board were each of them either bondholders or shareholders, but not both; and the bondholders, as it happened, were all on the board. What conclusion can be drawn?" The conclusion wanted is, "No shareholders are bondholders." Now nothing can look simpler than the following reasoning, *when stated* :—"There can be no bondholders who are shareholders, for if there were they must be either on the board, or off it. But they are not on it, by the first of the given statements; nor off it, by the second." Yet from want of any clue what to look for, almost every one, as above mentioned, failed to hit on so apparently obvious a solution. I could add other precisely similar instances.

(t), and either productive of pleasure (p), or preventive of pain (r)." Boole states his equation (p. 110) thus: $w = st\ (p + r - pr)$. It is then proposed to find the relation between wealth and things limited in supply, when the other terms in the definition are "eliminated." As he performs the process, several lines of symbolic work are wanted. But it might just as well be got at almost instantaneously in one line. All that is necessary is to "multiply" (in the Boolian sense) both sides of the equation by $1 - s$. The right hand side then disappears, for $s\ (1 - s) = 0$ by the fundamental axiom of the system. We have accordingly $w\ (1 - s) = 0$, or $w = ws$: "All wealth is limited in supply." This is, of course, an obvious immediate inference, but by a similar process of choosing the appropriate multiplier for a particular conclusion (as I have noticed in various cases) pages of symbolic work may be saved. It may be well to recall the reader's attention to the meaning of elimination in this case. If wealth be "limited in supply, transferable, &c.," it is obvious that by dropping the reference to the latter conditions we may say of it simply that it is "limited in supply;" that is we may refer it to the wider and less special class. This, as was pointed out, is all that logical elimination (speaking generally) can effect.

Two minor points may conveniently be noticed here, involving characteristics of Boole's system which have been criticised, as it seems to me, on insufficient grounds. The first of these concerns the fittest mode of expressing the ordinary logical affirmative, All X is Y. Boole commonly starts with the use of what he calls an "indeterminate symbol" $x = vy$. Of the limits of the class v we know nothing, beyond the fact that it has something in common with y.* This is objected to by Jevons as vague and indefinite.† His objection I understand to be in effect this:—To state that X is *some* X is to leave it an uncertain portion. We want to know *what* portion. Now by putting it $X = XY$ we say at once what Y it is. All mammalia are vertebrates: true; but what vertebrates are they? Mammalian vertebrates. It is considered that we thus gain the advantage of having our proposition in the form of an equation, or rather identity, instead of that of reference of an object to a class. This last is just the merit, it seems to me, of Boole's plan; at least as a primary symbolical way of stating such propositions, for (as we shall see in a moment) Jevons's plan does not in reality differ from it. Any apparent gain in information and definiteness by saying that X is XY is perfectly delusive. We are thus doing no more than making a symbolic generalisation of the old joke:—"What functions does an archdeacon perform? Archidiaconal functions." We know no more than before what the "some" functions are.

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* Boole does not seem quite explicit enough on this point. In one place (p. 90) he says of v (or rather of its equivalent in his system, $\frac{0}{0}$) that it means "all, or some, *or none*." In the last case x must be non-existent, and the proposition would have to be interpreted "x (if x exist) is y."

† *Principles of Science*, I., p. 49.

Boole's expression $x = vy$ has at least the merit of prominently implying this indefiniteness, and seems therefore preferable as the primary and general form for representing propositions which really do tell us nothing more than that X is some Y. But it would (as just remarked) be quite a mistake if it were supposed that Jevons's form is at bottom in any way distinct from Boole's. Either of the two is obtainable from the other, and in fact Jevons's form is perpetually employed by Boole in the process of working out conclusions. If we begin with $x = vy$, and "eliminate" v, we get at once $x(1-y) = 0$, or $x = xy$. Conversely if we begin with Jevons's $x = xy$, and "expand" x in terms of y, we come directly to $x = vy$, or Boole's form. The two forms of expression are therefore perfectly equivalent, and the only question is which of them is preferable as a primary symbolical statement of the characteristics of the propositions in question. Now since there are plenty of cases in which we have not a notion *what* Y is X, (this will constantly be the case when Y is an accidental attribute—a distinction not sufficiently recognised by Jevons) it seems that this inferior limit of knowledge ought to be held as typical, and that form of proposition preferred which calls attention most prominently to its narrow extent.

The other point refers to the proper method of expressing alternatives. This question is complicated by the introduction of the purely literary or grammatical discussion of a matter of usage, *viz.*, whether the word "or" does or does not imply that the disjunctives are mutually exclusive. Boole unfortunately committed himself to an opinion as to which signification should be preferred "in strictness of meaning;" a somewhat hopeless attempt—for the final appeal of usage is rather against his opinion that the popular forms of disjunction are mostly mutually exclusive. The really important thing however is to improve upon popular vagueness, by keeping prominently before the mind the fact that there is this ambiguity. This is just one of the things that symbolic language can and should do, and Boole's expressions have the merit of great clearness and precision here. Sometimes what we mean is "A or B or, it may be, both;" sometimes "A or

B but not both." These are surely such distinctive meanings that it is a real blemish in common language to merge them together, for we certainly ought to know, in any given case, which of the two we have in mind. This Boole indicates by always using $a\,(1-b) + b\,(1-a)$ for the exclusive sense, and $a+b\,(1-a)$ for the non-exclusive. (There is no harm, however, as he points out, in using $a + b$, in case we happen to know that a and b have nothing in common, for in that case $ab = 0$, and the three expressions therefore are of course identical.) Jevons, on the other hand, adopts a symbolic form of his own, as a sort of indifferent form of alternative, that is one which declines to commit itself to either of the above-mentioned meanings.* Much of what he says is criticism of Boole's rather awkward statement as to the "strict meaning" of alternatives, and here he has decidedly the better of him. But on the main point, how alternatives should be expressed, Boole seems to me quite unassailable. As this article is not a discussion of Jevons's system, I will simply make the remark that the sole reason why his notation can be worked seems to me to lie in the fact that the alternatives with which he is concerned are, as it happens, nearly all of the mutually exclusive kind. This is because his system is founded on the method of dichotomy, which Boole adopted, and which has been already explained.

In the foregoing sketch attention has purposely been confined to the discussion of a few fundamental and characteristic features of Boole's more purely logical system, both because these are of more intrinsic importance and because interest has lately been re-excited in this direction by the publication of Jevons's logical system. In a complete review of Boole's labours several other points would demand careful examination, which can be barely glanced at here. One of these concerns his views about the constitution of the human intellect, a subject upon which he considered that the mathematical form which his system assigned to the laws of thought threw much light. A whole chapter was devoted to this inquiry. It is decidedly interesting, and passages of it are suggestive and eloquent, but on the whole I must confess that it seems fanciful and of little value. Great as were Boole's deductive powers (in mathematics he has been assigned a very high place by competent judges), he does not seem to have possessed much of that, certainly rare, metaphysical faculty which distinguishes amongst elementary truths those which are really axiomatic.

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* This is not a necessity of his notation, for (as he has pointed out) these two classes of alternatives could readily be expressed and distinguished by means of his symbols.

One really glaring instance may be given. He says (pp. 49, 50) that the axiom which is termed the Principle of Contradiction, and which "has been commonly regarded as the fundamental axiom of metaphysics, is but the consequence of a law of thought, mathematical in its form," *viz.*, "the law whose expression is $x^2 = x$." This law, regarded as one of thought, simply states that to think an attribute of a thing twice over is to do no more than to think it once;—to say of a thing that it is "black, black," is to say no more than that it is simply black. This is doubtless a very elementary truth, but to regard it as the *source* of the Law of Contradiction surely argues a strange inversion of order. However that law be regarded, nothing can well be considered more ultimate. We could not distinguish one thing from another without it; we could not even, to go no further than these symbols, distinguish x from what is not x without making use of it. And yet Boole gives a demonstration of this dependence, a demonstration every step of which demands the law several times over.

J. Venn.

V.—SCHOPENHAUER'S PHILOSOPHY.

Critics of history are still somewhat undecided as to the grounds of the wide and rapidly increasing popularity of the philosophy of Schopenhauer.* In 1840 he may be said to have been utterly unknown; at his death in 1860 but a small band of devoted and zealous disciples had begun their propagandist labours. Now a complete controversial literature has grown up around his theories, and one can scarcely open any philosophical work without finding reference to his name and thoughts. To take but one example among many, the most recent products of French speculative thinking, Renan's *Dialogues Philosophiques* and Quinet's *L'Esprit Nouveau*, are throughout conditioned by the attitude taken up towards what may be called Schopenhauerism.

No doubt some of this celebrity may be due to the admirable qualities of Schopenhauer's style; but style alone never secured attention for a thinker's results. It may be said also that the spirit of the age seems to be impregnated with the pessimist view of things which was apparent mainly in the literature of Schopenhauer's time; but pessimism, after all, is a deduction from the system, and it is in the system itself that interest is felt. Nor is it sufficient to point to the popularity achieved by the *Philosophy of the Unconscious*, and to grant to Schopenhauer only a reflected fame. Von Hartmann has in many essential points amended and in every way improved the system of his predecessor, but the same causes which secured success for his work have brought into fresh notice the writings of the earlier thinker. The most important of these causes, it seems to us, is to be found in the present condition of the question as to the relation between philosophy and science.

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* Arthur Schopenhauer was born at Dantzic in 1788, and died at Frankfort in 1860. An admirable sketch of his life and character has been given by Miss Zimmern, *Arthur Schopenhauer*, 1876. Fuller details will be found in Gwinner's *A. S. aus persönlichem Umgange dargestellt*, and in Frauenstädt und Lindner, *A. S., von ihm, über ihn.*

The historian Zeller, at the close of his survey of German philosophy, takes occasion to censure what he calls its one-sided idealistic tendency, and marks out as the special problem for modern speculative thought the union in method and result of metaphysic and natural research. The relations between these two aspects of thought have changed of late, and that, not so much on account of the wonderful advance in knowledge of particulars within the past quarter of a century, as because there have been added to the stock of scientific truths, or (may one say?) hypotheses, certain conceptions which seem to embrace the sum of existence, and therefore to yield an answer to the perennial problem of metaphysic, the explanation of experience as a whole. There is in consequence a growing tendency to substitute for metaphysic properly so-called a species of speculative physical science, in which, however, careful analysis will always detect an unsuspected residuum of purely metaphysical principle.* It must never be forgotten that, however much philosophy may owe to science in the way of material, it has a method or way of looking at things and an object peculiarly its own. The only satisfactory means of reconciling the two apparently opposed forces is the discovery of the one principle which lies at the basis of both, the one identity which contains in itself the power of development into the different and manifold. The philosophy of Schopenhauer and Von Hartmann has to a remarkable extent recognised this necessity, and seems to contain a principle of the desired kind. In their system the fundamental metaphysical unity seems to be in harmony with the most recent physical conceptions, and it is on this account mainly that they have attracted such wide attention.

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* As an example of this one might point to the recent work of Professors Stewart and Tait, *The Unseen Universe.*

Schopenhauer has himself given a clear and definite statement of what he understands by Philosophy and of what we may expect from it. "Philosophy," he says, "is the complete and accurate expression of the essence of the world in the most general notions." It penetrates beyond the phenomenal world presented to us and reaches the reality of which that is but the manifestation. All metaphysic is the result of a deep-rooted want in human nature, a desire to attain to ultimate reality, to know Being as opposed to the ceaseless Becoming of the world of the senses. From the same need spring religions, which are only the preliminary stages of philosophy. "Religions are the children of ignorance and do not long survive their mother." All that is true and valuable in them is taken up into philosophy, which expounds the essence of the world in its ultimate terms. Philosophy consequently is of no church, it is indifferent to religion. Nor does it trouble itself with the *why* of the universe; it handles only the ὅτι, the fact. Existence must be taken for granted; that there is a universe must be presupposed. Why there should be anything at all is a question to which no answer can ever be given, for it is in itself absurd. Philosophy must begin with experience, with phenomena, in order to penetrate to what lies beyond, and, when reality has been reached, must then return synthetically, showing the relation between the real essence and the phenomenal world from which the investigation took its start. This conception of Philosophy is at least comprehensive. Schopenhauer, further, has left us in no doubt as to his place in the historical succession of great thinkers. He bases his own system on the philosophy of Kant, and claims to be the only post-Kantian writer who has truly apprehended and successfully carried forward the great thought of his predecessor. A certain knowledge of Kant is therefore presupposed in the student of Schopenhauer's works, and his early essays contain little beyond criticism of the Kantian doctrine.

It will not be necessary to point out more than briefly the salient points in the philosophy of Kant, which Schopenhauer has used in the construction of his own system. The *Critique of Pure Reason* may in one aspect be regarded as merely an analysis of experience, as an analysis of the nature and connection of the elements involved in cognition properly so called. The result of such analysis was shortly—that sensations received into the pure *à priori* forms of intuition, Space and Time, were cognised as objects by being wrought into the synthesis of experience through the Categories. In this process were involved, first of all, the particular manifold sensations of the several senses, which are *à posteriori* or given, resulting in fact from the action of real things upon the faculty of sensibility. But, secondly, such sensations can be experienced only when received into two general forms, which, as universal conditions, do not themselves belong to any sense, and which are not general or abstract notions. They are in fact pure intuitions, and *à priori, i.e.,* conditions necessary for the reception of sensations by any intelligence. Again, this manifold of sensation is a mere *ἄπειρον*, a mere indefinite multiplicity, which becomes matter of knowledge only through its necessary relation to the unity of consciousness or the Ego, which is the one identity amid all difference. The mass of sensation is reduced into objects by being connected with this unity, and the definite modes of such connection are the Categories, the universal conditions of thought, through which alone objects can be known. This is Kant's theory of the process of knowledge. Cognition or rational explanation is essentially the discovery of identity amid difference. *The* identity in all experience is the Ego or Unity of Self-consciousness; the modes in which it expresses itself are the Categories; the special matter to which these Categories apply are sensations in Time and Space. It followed at once, according to Kant, that knowledge was limited to the phenomenal. Things-in-themselves are not sensations, cannot be received into the forms of Space and Time, and therefore cannot be reduced to the unity of self-consciousness. They lie beyond experience; yet their existence must be postulated, for the matter of sensation bears on its face the character of something *given*. That which *gives* is the thing-in-itself. It need scarcely be said that this doctrine of the Thing-in-itself is the hardest in the Kantian philosophy. Kant's own expressions with regard to it are exceedingly lax, and at times so contradictory that it is not surprising there should be wide difference of opinion as to his real meaning. That things-in-themselves, however, give rise to sensations is both the commonly received acceptation of Kant's doctrine and that taken by Schopenhauer. Further discussion may therefore be omitted. But the thing-in-itself appears on another side of Kant's system. The Ego or the unity of self-consciousness is for him merely a logical unity; internal sense gives knowledge only of varying states, it can never attain knowledge of the real Ego. Accordingly there comes forward the opposition of noumenal and phenomenal Ego as well as of noumenal and phenomenal object. If then we were to give a brief formula for the Kantian philosophy, so far as it was used by Schopenhauer, it would be expressed somewhat thus: Inner and Outer Experience, which is the abstract expression for the cognised system of things, may be resolved logically into Subjects knowing and Phenomena known; but beyond what is experienced there is a realm of real objects, among which the Ego has its place.

It is from this result that Schopenhauer starts. "Kant's principal merit," he says in the opening of his critique of the Kantian philosophy, "is the separation of the phenomenon from the thing-in-itself." There remains now for philosophy only the determination of what the thing-in-itself really is, and this Schopenhauer claims to have accomplished. At the same time he is not entirely satisfied with Kant's critical procedure. It was a grave error in Kant even to appear to say that there is a causal connection between things-in-themselves and phenomena, for cause is a relation applicable only to phenomena themselves. The table of the Categories is absurd, and the whole doctrine of the Categories is vitiated by an erroneous theory of abstract thought. According to Schopenhauer, abstract notions are formed from intuitions, and therefore cannot be involved in the process of knowledge itself. There is only one category, that of Cause or necessary connection, which, with Space and Time, forms the *à priori* element in knowledge. All that Kant included under the head of Schematism and much of the Transcendental Dialectic are dismissed with contempt, and he is blamed by Schopenhauer for not having deduced his doctrine of the thing-in-itself from the simple proposition—No object without a subject.

No object without a subject, No subject without an object—merely express in technical terms the fundamental fact that our cognitive consciousness, whether perception, understanding or reason, contains nothing beyond these two factors, a subject knowing and things known. But to be an object for the subject and to be a Representation *(Vorstellung)* are one and the same thing. All our Representations are objects of the subject, and all objects of the subject are our Representations. Further, representations are connected in an order regular and determinable *à priori*, whence it follows that no individual, independent, self-existent thing can ever be an object for us.

These two propositions make up what is now called the doctrine of Relativity: to the second of them Schopenhauer gives the special name Principle of Sufficient Reason, for it expresses the fact that our experience is knit together in definite and necessary connections. All necessary truths are specifications of this general principle, and may be divided into four classes, for there are four forms in which the Principle manifests itself, four classes of objects to which it applies:—(1) Empirical objects or intuitions, where the principle takes the form of the law of Causality—every change must have a cause;

(2) Abstract notions, where the principle is that of Reason and Consequent, logical as opposed to real connection; (3) Space and Time, the formal element of intuition, in application to which the Principle yields mathematical truths; (4) Inner acts of will, where the Principle is the law of Motive, motive being the cause of which action is the effect.

From this restatement of the Kantian result there follows the first of the two propositions that make up Schopenhauer's system:—The World is Representation.

Experience is summed up in the one word *Vorstellung*, which itself contains in inseparable unity the two factors, subject and object. Of these the subject can never be known; it knows everything that is knowable, but it is a contradiction in terms to suppose that it can know itself. Consequently no predicate of experience can properly be applied to it; it can neither be said to be one nor many. Objects on the other hand are constructed by the activity of the intellect working upon sensations or bodily affections. A sensation becomes an intuition or object of knowledge, when by the activity of the understanding it is referred to space and regarded as the effect of some cause. Not indeed that there is any causal nexus between objects and sensations; sensations in order to become objects are simply projected outwards by the mind's own action. The origin of the whole process is to be found in the affections of our own body, which cannot be cognised until so projected and presented as an intuition. Reality is solely the work of the understanding, which objectifies the organic affections of the body. The one function of understanding is recognition of causal connection, and its correlate regarded as external is what we call Matter. "One must be deserted by all the gods," says Schopenhauer, "to imagine that there exists outside of us a real world of objects, corresponding to our Representations." Object and Representation are one and the same.

With this purely subjective idealism Schopenhauer tries to remain content, but he cannot free himself from the difficulties inherent in the position. He is compelled to use the curious expression that organic changes are caused from without. When we probe this somewhat deeper, we find him to mean that sensations in order to be known must be projected outwards and referred to something as cause. But to what thing? The only thing in experience is the intuition constructed from sensation and therefore posterior to it in order of existence. Further, it must be asked whether or not the sensations are known before being referred to some cause. If they are known, then they are already objects, so far as object means matter of knowledge; if they are not known until constructed into intuitions, then there is nothing for such intuitions to cause. From this dilemma Schopenhauer only saves himself by a later and totally different theory of the origin of organic affections—a theory, however, equally at variance with his first proposition.

One more question must be put with regard to these organic affections. They are defined to be states of the body. Are they known to be states of the body? To this Schopenhauer returns a most confused and confusing answer. The body itself is evidently only one object among other objects, and can be cognised as object only through a process similar to that gone through for other intuitions. The organic affections cannot be known as states of the body in this sense. Still Schopenhauer thinks, they *are* somehow known as bodily affections,—the body is therefore both a mediate, *i.e.*, a constructed object, and an immediate object, as giving the means necessary for this construction. And he is finally compelled to admit that, when the body is called an immediate object, the word object is taken in a special, unique sense—which is unfortunate when one thinks of his first proposition.

Formidable as these difficulties are, Schopenhauer proceeds to land himself in a still more serious perplexity. Causality is a relation among representations; it simply expresses the demand of the understanding that for every change there should be an adequate ground in the preceding phenomena. But, he goes on to state, change is impossible save as the result of active Force. Phenomena are the results of certain natural forces, which are themselves unknown and not subject to the law of causality. "Of the inner essence of any phenomenon," he says, "we have not the slightest knowledge. We call it Natural Force, and it lies altogether out of the field of causal explanation, which merely names the constancy of the expression of a force a law of Nature." "The force itself remains a secret." "To causal explanation Nature appears as a collection of inexplicable forces, and it can only give the rules according to which phenomena succeed one another." If this be true, then phenomena have no connections among themselves, their relations are merely arbitrary, and the causal judgment has no application to them. The theory in fact is in sheer contradiction to Schopenhauer's earlier position of idealism. Objects are constructed by the mind's own activity out of sensations, and yet these objects are the result of natural and unknown forces. But force and result are unintelligible unless it be supposed that there exists between them a relation of cause and effect. From thinking any such connection we are once for all cut off by the maxim that causality applies solely to representations. Further, as our knowledge is merely subjective, contained within the circle of representations, how can we ever step beyond to affirm the existence of Forces? In all fairness, too, it must be insisted that, if such forces lie at the basis of phenomena, what they in the first instance give rise to are the organic affections; and this, as we find, is, or at least appears to be, Schopenhauer's view. It does not, however, escape the criticism that he thereby attributes to forces, which lie beyond experience, existence and causal action, which are predicates of experience, and also overthrows his previous theory that the intuition is to be looked upon as cause. Finally, it is important to observe that the relation between the natural forces and representations is not one of immediacy, and that therefore the one cannot be regarded as merely the manifestations of the other. One can hardly avoid the conclusion that Schopenhauer, despite his careful and sometimes acute criticisms of Kant, had not sufficiently appreciated that thinker's results. He has manifestly no glimmering of what is truly the crucial point in the Kantian system, the Deduction of the Categories, their relation to the unity of consciousness on the one hand and to the manifold of sense on the other, with the resulting truth that experience is but a network of thought into which material has fallen. This want of appreciation appears most strongly in Schopenhauer's doctrine of the relation between Notion and Intuition. To him these are absolutely distinct; notions are secondary formations, drawn from intuitions by the processes which are so formally laid down in the old text-books of logic—comparison, attention to similars, abstraction and so on. The most abstract notions, Being, Unity, etc., are therefore the poorest and last. As if it were not evident that these notions are involved in the very simplest experience with which consciousness starts! Without them experience would be impossible; they are the elements of rational cognition, the conditions of all intelligence. To Schopenhauer the whole theory of the Categories as the constitutive elements of experience must therefore seem an absurdity, and he does not hesitate so to describe it.

All that is contained under the first proposition—The World is Representation, may be looked upon as the explanation of the Phenomenal. We have now to get Schopenhauer's statement of what the Thing-in-itself really is; and upon this statement he founds his claim to originality as a thinker.

In our cognitive experience we never touch the *real;* things-in-themselves are not to be *known* on any terms by any intelligence. But in inner experience, in the consciousness of internal states, we do come across something that is more than phenomenal; this is the Will. I know that I will; self-consciousness is the knowledge of the Will or of the subject willing. It is through our volition that we have a real place in the universe. The will in its several acts has an inner and an outer side, an inner for immediate consciousness and an outer for intelligence. The inner is the act of willing properly so called, the outer is bodily motion. These two are not to be thought as different; they are one and the same thing, which only appears in different ways, either immediately to consciousness or mediately to intuition. And, as each act of will is for intuition a motion of the body, so the whole will is in outer manifestation the whole body. The body, to use his technical expression, is the objectification of the will.

The identity of the will and the body may appear a little hard to understand, and not unreasonably some proof of it might be demanded. This, however, Schopenhauer declines to give. The knowledge of the identity, he says, is of a quite peculiar kind; it is a philosophic truth *par excellence*, not to be subsumed under any higher principle, and therefore to be taken for granted.

Let it then be granted that in knowing the body we know the Will and its manifestation to intelligence. There is here a specimen once for all of the relation between the real and the phenomenal. The real thing, the thing-in-itself, is Will; its manifestations are phenomena. This proposition is the essence of Schopenhauer's philosophy. It is at once noticeable that, in throwing the results of the investigation into a general formula, we have gone beyond the premisses. The only thing-in-itself to which we had attained was *our own* Will. Must not each one, then, in logical consistency look upon his own will as the only reality *in rerum naturâ*, and land himself in theoretical Egoism? Schopenhauer makes no attempt to disprove such a conclusion. Those who adhere to it, he says, are not to be convinced by argument, but ought to be sent to a mad-house, where it is to be hoped their folly will be cured. We must, by natural analogy, ascribe to each phenomenal body resembling our own a Will as the reality of which it is only the appearance. The same analogical reasoning must be extended to all phenomenal objects; their inner essence is Will.

Thus at the root of existence in all its varied forms there is Will, supporting them, or rather manifesting itself in them. This Will, not being phenomenal, not being given in Representation, is not in Time or Space, is not individualised, and is not subject to the law of Causality. Nevertheless we must say that it is ONE, for all conditions of multiplicity are foreign to its nature. It is the great identity from which springs all diversity. The modes of its appearance may be many, but it is one, and is in all and each of them the same. As the scholastics said of the soul, it is all in the whole and all in every part. It is the same Will that appears in us and in every animate and inanimate object. Phenomenal differences merely mark the various stages in the evolution or self-realisation of this Will. For it is the essence of will to strive; it is a power incessantly struggling to live, *i.e.*, to give itself manifestation. In the lowest stage of its existence it realises itself in the various physical forces, which are its forms, and the action of which is determined mechanically. All causes are merely occasional causes; they do not excite the primitive will to action, but give definite direction to its act. A higher stage than the physical is attained in chemical forces, which are not explicable by mechanical causes. In vegetable life and in the lower side of animate existence, the law of cause takes a still higher form, and becomes that of stimulus. Finally, when the Will, in its constant struggle to give itself expression, has attained to the manifestation of itself in a complex organism endowed with a brain, there arises the power of representation, and the law of cause becomes the law of motive, for motive as thoroughly determines action as mechanical impulse determines the direction of motion.

Thus the blind efforts of the Will result in organisms of which the several parts represent its inner strivings. The feet, for example, are objectifications of the will to walk, the eye of the will to see, the brain of the will to know. Whenever brain has been formed, intelligence arises, for intellect is but the function of the brain, and with intelligence springs up at a stroke the phenomenal world, the world as we know it.

At first sight there might appear to be a complete opposition between this theory of the genesis of the universe and the doctrine that individual things are mere representations and dependent on brain or consciousness. But, though Schopenhauer never completely evades this difficulty, he has a certain loophole by which to escape. The Will, before the creation of brain, does not manifest itself in individuals, but in general or type-forms, Ideas in the old Platonic sense, and these reveal themselves to intelligence as individuals.

Evidently the whole theory of the one Will as the Thing-in-itself turns upon the knowledge we have of our own will, and the question which naturally presents itself is—Granting that we have some consciousness of ourselves as willing, is this a knowledge of the thing-in-itself? To this Schopenhauer's answer is most distinct. "The knowledge I have of my will, though immediate, is yet not to be severed from that of my body. I know my will not in its totality, not as unity, not completely according to its essence, but I know it only in its individual acts, in time." It follows that, in knowing my will, I do *not* know the Will in itself. Further, when I know my will, it is not will in general of which I am conscious, but myself exercising volition: in fact, as Schopenhauer frequently expresses it, I know the Subject-willing. The cognitive subject has knowledge of the subject of will. Are these two subjects the same? To this Schopenhauer's answer *ought* to be that they are not the same; for, as he has repeatedly said, the subject cannot know itself. But his answer is that they *are* the same, and that this identity of the two subjects is the miracle κατ' ἐξοχήν, not to be explained, simply to be posited. He has already postulated another miracle, the identity of will and body. A philosophy which requires two miracles to start with is not likely to present us with a very coherent system.

We are said to know Will as the reality. Intelligence is fashioned by the will and completely subordinate to it. But the will as we know it is a rational will, will determined by motives, or by representations. Evidently this will cannot be the ultimate reality, and accordingly Schopenhauer is compelled to select instinct and vital actions as representatives of the will. Between these, however, and the higher form which we correctly call will, there is complete difference and the same name can be applied to them only by analogy. The starting point, then, so far as it rests on what is given in consciousness is not satisfactory. And what can be made of the rapid leap by which the whole universe is subsumed under the category of will and its manifestation? The criticism that the extension of the term will to all forms of force is merely a false metaphor is so obvious that one need not linger on it. Schopenhauer attempts to defend the designation of all force as will, and insists upon calling the genus by the name of its most important species. The question is more than one of nomenclature, and it is but to call attention to a simple rule of logic to point out that what is characteristic of one species cannot be true of all contained under the genus.

However inadequate and unsatisfactory may be the process by which Schopenhauer has reached his fundamental proposition, his conception of the universe presents itself as one of the two possible modes of regarding the totality of things. The ultimate distinction of philosophy turns upon the conception of what lies at the basis of phenomena—whether the substance of the world is to be regarded as Thought, Intelligence, Mind, or as blind unconscious Force. The problem which any theory of the universe as the evolution of blind force has to solve is that of the relation between this force and conscious thought. We think phenomena in definite relations; the world as known is a synthesis involving the subject thinking and the objects thought. Is it conceivable that this known universe should spring from something which is absolutely blank, void of all those qualities which are only elements of thought? Is it not rather the case that in any attempt to exhibit such evolution there has been an unconscious transference to the blank substance of all the thought-relations that give meaning to existence? To such criticism Schopenhauer's theory is peculiarly open, for he has cut off from himself all means of retreat. The Will in itself lies beyond the sphere of Space, Time and Causality, for these are subjective forms which spring into being only when a brain has been evolved. It can have no individuality, no distinction or difference, no end towards which it works.

But we find that the Natural Forces, which are forms of Will, are distinct from one another, and therefore individual. Even if are they called Ideas or *stages* of the evolution of will, not the less are they stages, grades marked off from and related to one another. Relation, however, is only possible in thought, and cannot apply to what lies beyond thought. How again are the actions and reactions of these forces conceivable if they are out of space and time, and subject to no law of causality.

The confusion is even more apparent when it is asked how the Will comes to assume definite forms. No proposition is more insisted on by Schopenhauer than that the production of any effect requires the concurrence of a primitive force and some occasioning cause which directs the force. The will, therefore, must be acted upon by some cause before it could take definite form. But whence comes this cause? The will is the *all;* there is nothing outside of it to determine its action in any direction. The will has in itself no power of development to any definite result, and the Ideas or stages are nothing but the scholastic substantial forms, abstracted from individuals and forthwith hypostatised.

Schopenhauer never directly faces the problem how consciousness can result from unconscious force; he merely asserts that the fact is so, but at another point he comes upon one of the crucial questions for any mechanical theory. What is to be made of the notion of End or Final Cause in Nature? Organisms disclose unity of plan carried out with diversity of instrument. Is such unity explicable otherwise than on the supposition of thought as that which realises itself in things?

Nothing at first sight seems simpler than Schopenhauer's solution. Unity of plan, he says, requires a manifold in space or time to disclose itself. This is exactly accounted for from the fact that it is the one will manifesting itself to intelligence in phenomena. The unity is merely mechanical; teleological unity is introduced by the understanding. Let this pass as an explanation of unity of plan; but organic structures display or seem to display correspondences with what lies out of themselves, with the environment. The eye seems to be constructed for the reception of light, and so on. How is this apparently artistic arrangement to be accounted for? After an elaborate discussion Schopenhauer comes to the following notable conclusion:—"We cannot think a final cause otherwise than as an end aimed at, *i.e.*, as a motive. Final cause in nature is a motive acting upon an essence by whom it is not known." Now, motive is Representation. We have, therefore, the curious result that the will, the thing-in-itself, lying beyond thought, is determined by thought, and consequently that alongside of unconscious will there is somehow unconscious thought.

To pursue further this line of criticism seems unnecessary. It must be sufficiently evident that, in the attempt to evolve a universe of thought-relations from an absolutely unconscious substance or force, there have been already presupposed all the elements that go to form the ultimate synthesis of intelligence and its objects. Reality is only given in and by Thought: this is the first proposition of philosophy.

Two points, which appear to call for special attention, the position assigned to the cognitive subject, and the subordination of the Intellect to the Will, come forward more prominently in Schopenhauer's practical philosophy, to which we now pass.

The world of knowledge is a dream, individuality a chimera of the imagination. Nothing is permanent but the Will and the Ideas. These ideas or type-forms are unchangeable and incognisable by ordinary intelligence, for they do not come under the Law of Reason. Yet under certain circumstances these ideas *can* be known. To have this knowledge the subject must cease to be individual and must lose the relation of subordination to will. And all this, according to Schopenhauer, is possible. The subject may become, he says, a pure will-less intelligence, rising above the limitations of the Law of Reason, and resting in the contemplation of the object itself. When we, so to speak, lose ourselves in the fixity of our attention to any object, when consciousness is absolutely filled with the external thing, then the object is seized apart from its necessary relations, and the subject is freed from its subordination to the will; then we grasp the Idea. This is the attitude of genius, of Art; it expresses that absorption in the thing contemplated, that unconsciousness, which has at all times been signalised as the true mark of artistic genius. It is what Plato, in the *Ion,* has called divine inspiration. But this doctrine of genius is one that cannot be held by Schopenhauer. The whole theory of the will-less subject cognising the Ideas is inconsistent with his earlier propositions, and it is no defence to say, as Frauenstädt has said, that the subject only frees itself from its own individuality and remains in subordination to the universal will. This is neither Schopenhauer's view, nor satisfactory in itself. The only subject we can know is the individual; and, even if there were an absolute subject, none the less has it freed itself entirely from the will—for the accompaniment of æsthetic contemplation is unalloyed satisfaction, and that, as we shall find, can never be a concomitant of the Will.

A metaphysical principle, if truly comprehensive, must always yield the solution of the ethical problem of existence.—What is man's place and function in this world? What has he to do in this life, and what hope has he of a life beyond the grave? To such questions Schopenhauer has indeed a definite answer.

True reality belongs only to the universal, to the aimless Will, incessantly striving to realise itself. This reality is eternal, for Birth and Death, Beginning and End, apply only to the phenomenal. Our present existence is but an episode in this long life, a dream from which death is the awakening. As Heraclitus long ago said:—"While we live our souls are dead within us, but when we die we are restored to life. In our life and in our death are both living and dying. We live the death of the gods, and die their life." Nay even in what we call our present life there is nothing permanent or real; the dead past is ever behind us, the unborn future before us; the present moment is but the fleeting transition between two unrealities. The will, which is beyond the sphere of time, lives on for ever; so also the pure subject of knowledge; but the individual passes away, for individuality is a subjective form, a delusion. Immortality is only for the thing-in-itself; and to him whose vision is clear to philosophic truth death is but a powerless spectre, and the dogmas of eternal life and punishment old wives' tales.

Not only is this life a mere episode in the blissful repose of the universal will; it is a uselessly interrupting episode. Man's greatest misfortune is to have been born.

Not to have been born at all, says an old Greek poet, is the happiest fate, and next to that is to die young. For what is our existence? An endless misery. A happy life is for the individual nothing but the dream of the beggar in which he is a king, but from which he must awake to the knowledge that his escape from misery was only a fleeting vision. The balance in this world is always on the side of wretchedness. We are the playthings of fortune, the sport of the gods. Existence, in short, is a miserable sham. The world is full of suffering; it is indeed the worst of all possible worlds.

Nor has this pessimism merely an empirical basis. The evil is deeply rooted and incurable. For the Will—of which this world is the manifestation—is a will to live, a striving force. But striving springs from want, from dissatisfaction, and therefore from suffering. As the will is eternal, so suffering is eternal. No satisfaction of desire is ever permanent; it only rouses new desires. Man is an accumulation of a thousand wants; his life is a struggle for existence, a constant succession of cravings, temporary gratifications, and renewed desires. Pleasure is impossible without pain; it presupposes pain, and is therefore secondary and negative in nature. The will, then, is in its very essence pain, suffering and evil. Man is the creature of this will, for his character, his noumenal Ego, is determined for him, and character, as Heraclitus has said, is destiny. Freedom is only for the thing-in-itself; for man it is a mere delusion. Free choice is an intellectual process, and intellect is subordinate to Will. There is only one way given under heaven whereby man may be saved from this servitude.

While we rest convinced of our own individuality, the end towards which the will strives is made our own aim; we affirm the will to live, we rest in the position of egoism. When this affirmation of the will to live is pushed beyond the limits of our own individuality, and invades, suppresses the will of another (say in cannibalism, which Schopenhauer thinks the grossest form of egoism), wrong is done. The individual has not recognised that his will is truly identical with the will he is busy suppressing, that the will in short is injuring itself. The uneasy feeling on the part of an evil-doer, the germ of conscience, is the dim perception that his will is identical with the will of the one injured, that he is both aggressor and aggrieved. When this identity of the one Ego with all others has been recognised, when it is seen that our true self is not in our own person but equally in others, then the affirmation of the will to live takes the form of sympathy, fellow-feeling; whence flow love and all ethical action.

Yet, however noble may be the results of enlightened sympathy, it is a fundamentally erroneous position, for it is still affirmation of the will to live, it is still desire to continue this miserable state of things. Ignorance of the vanity and worthlessness of all things still obscures the vision. But "he from whose eyes the veil of Maya has been lifted, who recognises in all beings his own inner and true self, must consider the infinite sufferings of all living beings as his own, and take to himself the *pang* of the whole world. He knows the whole, grasps its essence, and finds it summed up in ceaseless transition, aimless striving, inner contradiction and constant suffering. He sees, wherever he may turn his eye, an agonised humanity, an agonised brute creation, and a fading world. All this, too, lies as near to him as his own personality does to the egoist. How shall such a one continue to affirm the will to live?"

The knowledge that all we here consider real is worthless and evanescent acts as a quietive, and becomes the motive power leading us to *deny* the will to live. The Intellect at last asserts its supremacy, and refuses any longer to serve the evil genius, out of whom comes nothing good. By no *action*, however, can escape be made, for to act is again to employ Will. Safety is to be found only in utter will-less-ness, in quiescence, approximating gradually to the glorious consummation of Nirwana, or absorption into infinite nothingness. This Nirwana is to be attained by ascetic practices, among which first of all stands absolute chastity. For, if the human race would only cease, there would no longer be this miserable world; there would be no more human misery. Suicide, which might seem to be the logical as it is the real outcome of the theory, is not according to Schopenhauer so efficacious a means of eradicating the human race, and against it he is unusually vehement.

The stubborn will to live must be further rooted out by voluntary poverty, by meek submission to injury and by mortification of the flesh. The most powerful ascetic means is fasting, and the highest stage of negation of will is attained in death by fasting. For one who has reached this stage, death, says Schopenhauer, destroys not only the phenomenal, but the essence; for such a one there is complete Nirwana, complete annihilation.

The whole theory of Pessimism, with its practical consequences, stands or falls with the three fundamental propositions—that reality is to be found only in the universal; that pain is the necessary accompaniment of will, pleasure being mere negation; and that intellect is completely subordinate to will.

But is it true, even on Schopenhauer's own principles, that reality is only in the universal, that this world is but a fleeting vision, a mere ripple on the surface of the infinite sea? The Will in itself is eternal and permanent, because it lies beyond time; but, as we have been so often told, the cognitive subject is equally beyond the sphere of time, equally eternal. With the universal will co-exists the noumenal subject. Subject and object, however, we also know, are inseparably connected; the one involves the other. Where there is a cognitive subject, there must be cognised objects. The world of objects must be eternal and real. The same result may be reached in another way. The will to live manifests itself in the world as we know it. But it is an eternal striving force; from its very nature its realisation cannot begin at any point of time. Consequently the world as we know it is just as real and permanent as the Will from which it springs; and we have again the result that in place of blind force there is at the root of existence the synthesis of intelligence and its objects, of thought realising itself.

So much for the first proposition. The second, the doctrine of pleasure and pain, is not original; it is as old as Plato, from whom it seems to be taken. And its refutation is as old as Aristotle. For, after all, it is but a hasty generalisation to include all pleasure under the title *ἀναπλήρωσις*, satisfaction of want, and so removal of pain. Man is not more an accumulation of wants than a system of powers and faculties, from the exercise of which he may derive unmixed pleasure. One instance of such pleasure comes forward prominently in Schopenhauer's doctrine of æsthetic Emotion, which he admits to be free from pain.

He does not, however, ground his pessimism so much on the negative nature of pleasure as on the positive and permanent character of pain. The will is an incessant craving, an undying want. But is this on his own theory possible? The will is *τὸ πᾶν*, the All. How can that which comprehends everything be in want? Want implies defect, need of something outside of self; but what is outside of the absolute? If the will in itself desires anything, it is not truly universal; if it is truly universal, it can desire nothing. From this dilemma Schopenhauer's philosophy can hardly extricate itself. Moreover, the will is a will to manifest itself; and its manifestation is this world. It has therefore attained its desire, its want is filled up. What more can it possibly desire?

In truth Schopenhauer's pessimism springs not from any logical basis, but partly from the discontented character of the man, and partly from the felt imperfection of individual life, of which the true explanation is far other than what he has given. There is always in life an inner discord, a want of harmony between the reality and the ideal of reason. As Emerson says, "Each man sees his own life defaced and disfigured, as the life of man is not, to his imagination. . . . Everything is beautiful seen from the point of the intellect or as truth. But all is sour if seen as experience." We are never what we might be; and, had we not within us the potentiality of something higher, we should not feel the paltriness of what we actually attain. All progress is but approximation to the fuller realisation of the true idea of humanity which forms the inner but hidden nature of each one. The world is doubtless full of suffering and wrong, but it does not therefore become our duty to withdraw from it, or to spend our lives in vain attempts to eradicate our own humanity. It is a world for strife and noble effort, in which alone true pleasure can be found.

We have reserved to the close the crowning inconsistency of Schopenhauer's philosophy. No proposition is more strongly insisted upon than that of the subordination of Intellect to Will. It is the very keystone of his system. The Will is real, the Intellect phenomenal. The intellect is the servant of will; in fact, to use his own illustration, the one stands to the other as the hammer to the smith. Now would it not be considered a remarkable hammer that should have in itself the power to annihilate the smith, and in so doing to annihilate itself? Yet this is precisely the action of the intellect upon the will. The intellectual conviction of the wretchedness of life acts as a motive upon the will, and determines it to deny the desire to live, *i.e.*, to deny, sublate, or destroy itself. But Pessimism was a deduction from the fact that the will to live was eternal. The will, we now find, is not eternal, and consequently Pessimism has no foundation. Not only is individuality destroyed by this negation of the will; the very essence of the universe is suppressed, there is absolute nothingness. Suicide is the veritable climax of Schopenhauer's system, for his philosophy ends by destroying itself.

On the whole, then, one cannot admit that Schopenhauer's system has made good the claim put forward for it by its author and his followers. It has not reached a true and well-grounded principle. The fundamental conception of a mighty Will, pulsing through all existence, and throwing off infinite forms again to absorb them into its own nothingness, has shown itself to be full of inconsistency and contradiction, and has landed at last in a gigantic paradox. Instead of blind, unconscious Force, we have seen him invariably compelled to postulate active creative Thought, the *divina intelligentia* of the great Italian thinker, Bruno. And, if one desired to present the true counter theory to his materialistic Pantheism, one might use the lines so frequently quoted by Bruno as the epitome of his own system:—

> Principio cœlum ac terras, camposque liquentes
> Lucentemque globum lunæ, Titaniaque astra
> Spiritus intus alit, totamque infusa per artus
> *Mens agitat molem*, et magno se corpore miscet.

ROBERT ADAMSON.

VI.—THE LIFE OF JAMES MILL. (II.)

QUITTING the perplexities of Mill's Edinburgh life we have now to follow him to London, where his career is traceable at intervals with tolerable minuteness, the records furnishing at the same time glimpses of previous parts of his history.*

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* For Mill's commencement in London, as well as for later incidents in his career, I am able to refer to letters of his to Dr. Thomas Thomson, the celebrated chemist, which have fortunately been preserved. The extent of the intimacy between the two will be apparent as we proceed. These letters have been put into my hands by Dr. Thomson's family, and with them I received two printed biographies, one of Dr. Thomas Thomson, and the other of his elder brother, Dr. James Thomson, minister of Eccles (in Berwickshire), who was equally intimate with Mill in early days. The biographies have the very best authority, being both written by the late Dr. Robert Dundas Thomson, lecturer at St. Thomas's Hospital, son of Dr. James Thomson, and son-in-law of Dr. Thomas Thomson, as well as his assistant in Glasgow, during his last years. I had not received these memoirs when my first article (MIND, No. I.) was written. They throw a little additional light upon the early biography of Mill, without, however, resolving entirely the chief uncertainties.

The brothers Thomson were successively engaged as assistant editors to the *Encyclopædia Britannica*, from 1796 till 1800, the period of publication of the Supplement to the Third Edition: the chief editor being George Gleig, afterwards Bishop of Brechin and Primus of Scotland. Both brothers contributed largely to the work—James, theological and miscellaneous articles, Thomas, his first scientific compositions, the foundation of his subsequent works. The contributions of the brothers seem to have extended into the Fourth Edition, which began to be published in 1805. The allowance for the editorial part of the work was £50 a-year, with house, coal and candle, in the office. The pay to contributors was three guineas a sheet.

Mention is made, in both memoirs, of the fact that, besides the standing Theological (debating) Society, there was, in Edinburgh, a Select Literary Society for general subjects, composed of six persons—James and Thomas Thomson, James Mill, John Barclay, the anatomist, James Carter, afterwards of Liverpool, a medical writer, and Dr. Miller, who, I suppose, was James Miller the editor of the Fourth Edition of the *Encyclopædia* (the two memoirs differ somewhat in the enumeration). These represent Mill's most intimate friends in Edinburgh, as regarded

He went to London in the beginning of 1802. It may be held as certain that he made the journey in the company of Sir John Stuart, whose movements may be judged from the date of the opening of the Parliamentary session. In point of fact that session had been opened the previous winter, and had been kept adjourned for short periods till February; but the business of the year may be said to have commenced about the 9th of February.

If Mill had journeyed on his own resources, he would have followed the plan that he afterwards recommended to his correspondent in Logie Pert, to "go on board a Montrose smack." His friend Thomas Thomson, whose pecuniary circumstances were then much better than Mill's, went to London

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study and discussion. At least four out of the six ultimately embarked in lay occupations.

It was in 1800 that Dr. Thomas Thomson, having finished editing the Supplement to the *Encyclopædia*, found a more commanding and lucrative sphere as a lecturer in chemistry. He associated himself with Barclay, who had been giving lectures in anatomy in a hired house since 1797. One of the memoirs states, as if a coincident fact, that "James Mill obtained a tutorship in the family of a Scottish nobleman in East Lothian" (the other memoir adds—on the recommendation of Finlayson, professor of logic). The inference would be that before that time Mill was resident in Edinburgh; his occupation is not stated. He was certainly as well qualified for writing articles in the *Encyclopædia* as either of the Thomsons, and seeing that they were editors in succession, he must have had it in his power to contribute, but we have no information as to the fact. One of the traditions floating in his father's family, and given me by the old man, his relative, whom I had been able to interrogate, was that he had been a corrector for the press in Edinburgh.

The name of the nobleman is not given; but the narrative, repeated in the same words in both memoirs, goes on to say that "he gave offence to the heads of the family by drinking the health at table of one of the junior female members of the house," and in consequence "gave up his situation, and determined to trust to his pen and his own exertions." This is a curious echo of the story told me by the daughter of Professor Stuart, of Aberdeen, who laid the scene in the family of Burnet of Elrick, but stated that the precise offence to Mill's pride consisted in his being, on one occasion, motioned to leave the dinner table with the ladies. It must be the same story, and the version coming to us from the Thomsons is the most to be relied on. If connected with his resolution to go to London, the fact must have been well remembered by both brothers, and we have it from their nearest relative.

Supposing, as appears to be implied, Mill entered upon this tutorship when Dr. Thomson began lecturing, and gave it up previously to going to London, he would probably have been a little more than a year in the family. Reverting to the oft-repeated tradition that connected him with the house of Tweeddale, I may remark that the eldest daughter of that house was then twelve years of age. The other noble houses of East Lothian are those of Wemyss and Haddington. In neither of these, would there appear to have been a young family under tutorship in 1800.

a few months later in a smack from Leith; the fare was £4. 4*s*, and the entire cost of the journey (lasting a week) was £5. 7*s* 8*d*. By coach the expense must have been twice or three times as much. Perhaps Sir John posted, and gave Mill the spare seat.

The first account of him in London is a letter that he addressed, on the 13th March, to Thomas Thomson, which, it appears, had been preceded at a very short interval by another not found in the collection. The one half of the letter recounts his operations with a view to literary employment, the other half is on politics.

His first introduction, how obtained he does not say, was to Dr. Bisset,* who promised to recommend him. But the great object he had in view was to be introduced to Dr. Gifford,† and for this he had already applied to Thomson in the previous letter, and now iterates the request; Bisset having promised also to mention him. It appears that Thomson was not personally known to Gifford, and undertook, solely on the strength of his scientific reputation, to write a testimonial in Mill's behalf. The letter goes on:—"I am extremely ambitious to remain here, which I feel to be so much the best scene for a man of letters, that you can have no notion of it till you be upon the spot. You get an ardour and a spirit of adventurousness, which you never can get an idea of among our over-cautious countrymen at home. Here everybody applauds the most romantic scheme you can form. In Scotland everybody represses you, if you but propose to step out of the beaten track. On the idea of remaining here, I have even formed schemes for you and me already. You must of necessity come here, where you may do anything you like.—You may make £500 a year by your pen, and as much by a class. I have mentioned to several people my idea of a class of Jurisprudence, who have assured me that it could not fail to succeed, and have advised me for that purpose to enter myself in one of the Inns of Court the first term; by which means too I may become a lawyer, if I shall ever think proper to make that attempt.* If you were here, and we had made to ourselves something of a name, which I think we surely might do, what would hinder us to produce a periodical work of our own, of any description that we might approve? I am sure we might make it more interesting than anything which is published at present. And the profits of these things, when they have a good sale, are immense. And our classes might go on at the same time, as well as larger undertakings which we might carry on. The great difficulty here is a beginning—when you have got that, you can make your own terms."

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* Dr. Robert Bisset, a Scotchman, born in 1760, author of a *Life of Burke*, *History of the Reign of George III.*, and some novels. He also published an edition of the *Spectator* with notes. He died in 1806. Mill says of him, in the letter, that he has not a single pretension to genius, nor "half the knowledge that you or even I have," and yet makes six or seven hundred a year by his pen solely. He does not appear to have been an editor, so that he could not himself provide employment for Mill.

† This was John Gifford (born 1758), whose real name was John Richards Green. He had squandered a fortune, and took to writing. Besides his voluminous authorship he edited the *Anti-Jacobin Review*, a monthly periodical of good standing. From a double coincidence of name, he is apt to be confounded with William Gifford, editor of Canning's *Anti-Jacobin*, and subsequently editor of the *Quarterly Review*. Among other things John Gifford wrote the *Political Life of Pitt*. For his adherence to the government, he was made a police magistrate, and died in 1818. It was as editor of the *Anti-Jacobin Review* that he was so important in Mill's eyes. Possibly also he could be the means of opening a newspaper connection to a qualified aspirant.

The second half of this interesting letter is on politics. Mill entered with the utmost zest into the political situation, notwithstanding a disclaimer to the effect that the newspapers tell all the news except what was kept secret from everybody. He had not been idle the few weeks of his stay. He had seen almost everything worth seeing in London. He had been at every tolerable debate, and had heard all the ministers speak, but had not yet heard Pitt, Fox, or Sheridan. The eloquence of the House of Commons, he says, is nothing to the General Assembly; no speaker that he had yet heard was equal to twenty in the Assembly. "They speak such silly stuff, and are so much at a loss to get it out, that they are more like boys in an evening society at college, than senators carrying on the business of a great nation. The old political stagers of both sides are standing completely aloof at present." †

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* The proposal to set up a class of Jurisprudence is very suggestive. It would seem to show that, while yet in Edinburgh, he had pushed his study of the Moral Sciences not merely into Politics and Political Economy, but also into Law and Jurisprudence. The moment chosen for the proposal would be a trying one. Bentham had published enough to upset the credit of previous jurisprudence; but his more important constructive treatises were still unpublished. The *Fragment on Government*, the *Principles of Morals and Legislation*, the *Defence of Usury*, the *Panopticon or Prison Discipline* were published, and I can infer from an expression of Mill's that he had studied them early. Dumont's Treatise was published in Paris this very year, and may have caught Mill's wakeful eye. I observe in a note to his translation of Villers's work on *The Reformation* (1805) that he professes acquaintance with the Prussian and the Danish Codes. His article on Jurisprudence written long afterwards is dependent on the later works of Bentham. Of course, in thinking of a subject for lectures, he had in view the demand, and found that there was a sphere among the law students.

† The only debates of interest that had yet occurred were Feb. 17—on

The particular moment of public affairs was the discussion of the pending treaty of peace, called the peace of Amiens. The preliminary articles had not yet been signed, but such points as the giving up of Malta to the Knights of St. John were freely canvassed, and much objected to. Mill had made up his mind in favour of peace at the cost of the various concessions, and not only so, but had written a short paper on that side, and had sent it to Dr. Bisset to show what he could do as an occasional writer on politics. His activity did not stop there. "I inserted a squib in the *True Briton* (newspaper) of 12th March (yesterday) against the Pic-nic Theatre."* I do not know whether Bisset had anything to do with this paper, or whether Mill obtained, or tried to obtain, admission to it as a writer.

We have not another letter to Thomson for eight weeks; in the middle of the interval occurs his first communication to his old friend, David Barclay (17th April). This last is our evidence that he went to London by road. He gives his impressions of English farming, as seen on his way. The first thing that struck him was the absence of waste land. The next was the inferiority of English farming, of which he gave two instances. One was that their ridges were more crooked than the worst even of the old ridges at home. The second instance was their ploughing with three, four, and even five strong horses all in a line; the plough itself being "a great ill-contrived, abominable instrument." On the other hand, "they excel us in the rearing and fattening of cattle," and so on.

Then for London itself. He works up a considerably exaggerated picture for Barclay's astonishment. On all sides

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the Civil List, chiefly with reference to the affairs of the Prince of Wales, in which Pitt and Fox both spoke; March 3—on the Army Estimates—a great War debate; March 5—on the American Treaty Bill, also of considerable length. Mill probably heard the two last.

He afterwards returns to his comparisons between the House of Commons orators and the orators of the General Assembly, at whose debates he had often been present. In those years among the men that wielded the Scotch ecclesiastical democracy were Principal Hill (who succeeded Robertson, the historian, as leader), Sir H. Moncrieff, Dr. Bryce Johnstone, Dr. Grieve, Dr. Alexander Carlyle, and the theological professors Hunter and Hardy. Distinguished judges and non-theological professors, as well as the pick of the nobility and gentry, sat as lay representatives, and often took part in the debates.

* The squib is a very small affair, consisting in all of a few lines. It reflects somewhat broadly upon the dissipated morals of the "Pic-nic Proprietors," as they are called by their young satirist. No clue worth following out is afforded either as to their actual proceedings or as to the new comer's interest in them.

streets filled, almost choking, with people, horses, waggons, carts, carriages and every sort of bustle. Another very fine sight, Hyde Park, especially on a Sunday (a newly-arrived Scotchman never omits going out on Sunday), where all the nobility and gentry go to air themselves. You see thousands of carriages and horsemen; and the walks, for miles, filled with the finest-dressed people walking almost as thick as the passage of your church when the people are coming out. Another sight was sailing down the river through thousands and tens of thousands of ships, of all sizes and all nations, with myriads of small craft plying around. He repeats to Barclay his having been often in the House of Commons. In the interval since he wrote to Thomson, he has heard Fox make one of the greatest speeches he was ever heard to deliver; it lasted two hours and a half.* He has another incident to relate. Walking yesterday in a solitary part of Hyde Park (he does not say where that was), up came two gentlemen riding behind, and talking together most earnestly. He looks once round: they are Pitt and Addington. He stared at them, Pitt stared back at him two or three times. To complete his chain of adventures, he next overtakes the Prince of Wales on horseback; and finally meets the Princess of Wales in an open chaise.

More to business is his second letter to Thomson on the 10th of May. He is now at work for Gifford in the *Anti-Jacobin Review*. He has written an article on Belsham's *Elements of Logic and Mental Philosophy*;† it is printed and is to appear on the 1st of June (out in May). He now wishes to review Thomson's own book (first edition of his *System of Chemistry*, 4 vols.); he has half read it, and but for Belsham stopping the way, would like it to be the leading article of the next number of the *Review*. (It appeared in the June number.)

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* In the interval, March 13 to April 17, Fox made three great speeches. First on March 16, in moving for a new writ for Tavistock, occasioned by the death of the Duke of Bedford, he indulged in a lengthened panegyric on the deceased Duke. On March 29, with reference to the everlasting worry of the Civil List, he delivered an animated speech occupying more than six of Hansard's dense pages; Pitt replying. On March 31, the same subject came up with more special reference to the Prince of Wales, on a motion by Manners Sutton relative to the Duchy of Cornwall. Fox supported the motion. The second of the three speeches must be what Mill alluded to.

† This is Mill's first article on Mental Philosophy known to us. It is sufficiently mature and decided in its views; and his stern logic is already in the ascendant. His mode of stating his positions is not exactly what he followed afterwards. He attacks Belsham's definitions, his logic, his order of putting logic before metaphysics, his theory of memory. He attacks the vibrations of Hartley, and praises Reid's arguments against them. He quarrels with Belsham as to the purpose of Locke's *Essay*—"an achievement of thought, the greatest perhaps on record in the treating of the human mind." Attacks his selfish theory of morals: "it imposes an obligation to be vicious, removes the moral character of the Deity, and renders it impossible to prove a future state." "Till you have first proved the moral attributes of God, it is

He gives a full picture of his situation and prospects. As yet his chief stay seems to be Gifford, who is full of friendly demonstrations, advises original composition, promises him books for review, but does not give him much encouragement. In fact, the return from the *Anti-Jacobin Review* would be but a small part of his maintenance. He doubts whether it would be prudent to stop in London on this precarious footing. "I may tell you, however, that I am a good deal more than half inclined to do so, and risk everything rather than abandon the hopes I have allowed myself to indulge. I can support myself for a year, as you propose, by the *Encyclopædia* [*Britannica*, the fourth edition now getting forward under the editorship of Miller], and during the time bring forward too, perhaps, some little thing to make myself known: I am willing to labour hard and live penuriously, and it will be devilish hard, if a man, good for anything, cannot keep himself alive here on these terms."

He recites a long conversation he had with Gifford (at a Sunday dinner) upon public affairs; but not interesting to us. It reveals the type of partisan that could criticise his party very freely (of Pitt he even says, "when a man deserts his principles I give him up") but took care never to vote on the other side. I cannot tell whether any value now attaches to the fact (given by Gifford) that Sir Sidney Smith never heard Napoleon called a great man without getting into a rage, &c.

He has another House of Commons debate to describe: one of the great debates of the session, on a motion by Nicholls for censuring the late Administration, and Pitt more especially (May 7). It was a fine opportunity for hearing all the good speakers of the Opposition. Nicholls, who opened, showed a good deal of knowledge; but very inelegant both as to language and delivery. Lord Belgrave, on the other side, had small merit. A number of silly fellows followed, and iterated Pitt's praises—saviour of the country—financial abilities—eloquence—firmness, manliness, integrity—sedition—danger of the constitution—morality, religion, social order, &c. The first speech worth mentioning was by T. Erskine, *apropos* of whom Mill denounces the speaking generally for diffuseness, want of

absurd to offer a proof of Revelation. For, however certainly you prove revelation to be the word of God, unless I know that God is true, how do I know that his word is true?"

arrangement, disproportion, &c. Wilberforce spoke tolerably well in favour of ministers—a flowing, wordy style, a clear though effeminate voice, says common things in a pleasing manner—only an ugly little wretch to look upon. Grey—a tallish, rather young, genteel man. His eloquence, very powerful, is described with great minuteness and in a strain of high compliment. Lord Hawkesbury—able in Pitt's defence; his speaking very much resembling Pitt's peculiar style of vehemence. But now Fox rose—the foremost man in the House of Commons by many degrees; the most profound and philosophical as well as the most generous and liberal; such an appearance of good humour; does every thing with so much nature and ease.

In three weeks (31st May) another letter to Thomson, communicating an improvement in his prospects. The good fortune consists in a proposition made to him to co-operate in a great literary work with Dr. Hunter.* It was to re-write a popular book called *Nature Delineated,* keeping the plan, but freshening the material. Hunter had been entrusted by two booksellers with the work, and, at his request, Mill drew the scheme, after Bacon's famous classification of knowledge. He goes into some detail, asks Thomson's advice upon the physical topics, and does not shrink from undertaking to write the greater part himself. He expects liberal terms, and also to become known to the booksellers. Hunter's name, he says, is pretty high.

He had delivered an introduction from Thomson to "Spankie," who promised to procure newspaper work for him next season. I cannot identify this reference.

The letter then intimates that his review of Thomson's book is to appear as leader in the next number of the *Review.* He never so much regretted his imperfect knowledge of the subject; wished to compare the book with some other elementary treatises, but was afraid.† His friendly interest in the success of the book is warmly expressed.

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* This was evidently Dr. Henry Hunter, a native of Perthshire, and living in London as minister of the Scotch church, London Wall. He was a voluminous writer—as compiler, editor and translator—now completely neglected. Three of his translations were of well-known works—Euler's *Letters,* St. Pierre's *Studies of Nature* and Lavater's *Physiognomy.* He was a very good man for Mill to get hold of, and Mill would be the square peg in his square hole.

† The article is of course intelligent. It summarises the work, and praises the method and the style, but is not critical. It is strange to me that Mill's intimacy with Thomson in Edinburgh should not have given him a better hold of the doctrines of chemistry. Perhaps, if we knew the circumstances of his Edinburgh life, we could assign the reason.

In the same letter we have the two days' debate on the Peace (May 13, 14) which may be considered *the* debate of the session. For this he had to be in the gallery from eleven forenoon to four next morning, and again from eleven till five in the morning. Very little good speaking. Windham—a disagreeable, squeaking voice, little animation, and all the obscurity of dulness. Lord Hawkesbury—able, but unmercifully long; the fault of them all, for want of method. The rest of the first day, clumsy panegyrics upon Pitt. Next day, somebody whose name he forgot (Sir W. Young) made a tolerable speech on Windham's side. Lord Castlereagh replied: fire and fluency, but not much in what he says—second rate. Dr. Laurence—a great coarse man, but has more knowledge than most of them. The Master of the Rolls (Sir William Grant) made one of the best speeches in the debate; calm, and thinks and argues more closely than most in the House. Near three in the morning, Sheridan rose and delivered a piece of the most exquisite wit and raillery that I fancy ever came unpremeditatedly from the mouth of man. It was not a number of fine sparks here and there—it was one blaze from beginning to end: he wrote down every part of the antagonists' speeches that struck him, and these he ridiculed with inimitable success. The discussion has hurt the popularity of the ministry, and Pitt will be in as soon as he can gracefully.*

The letter farther intimates that Mill is now sufficiently settled to take rooms by the year, in 33 Surrey Street. An old pupil of Thomson's, Macdiarmid (not a literary character), joins him. They have a sitting room, "about as good as yours" (in Bristow Street), and two bed-rooms for 50 guineas: they have to dine at the coffee-house, and get their boots cleaned by the shoe-black. There is still an important postscript:—"I had almost forgot to thank you for your care in providing me work from the *Encyclopædia*. You will see that now I shall have enough to do without it. I intend still to review for Gifford, because I wish to cultivate his acquaintance, and because I think I can review a few books without hindering my other work. You will hear from me again very soon: but now we shall be obliged to pay one another's letters (elevenpence, no franking by Sir John at present)."

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* See Wilberforce's Diary, 14th May:—"House till near four again—Sheridan infinitely witty, having been drinking." The greatest witticism of the speech is the comparison of Pitt to Theseus, who sat so long in one posture that he adhered to the seat; so that when Hercules came to snatch him away, in the sudden jerk a portion of his sitting-part was left behind. Leigh Hunt quotes an anecdote to the effect that Sheridan got this simile from some one as he walked down to the House.

Two days afterwards, he writes to Barclay upon family matters, being then in the hurry of moving. Another letter to Barclay of 9th Sept., is little to our purpose: unimportant political comments, and a discussion of harvest prospects; with family matters to be referred to afterwards. There is no letter to Thomson till the 20th Nov. The reason of the blank is that Thomson was in London for ten days in August; but although he has a diary of the humours of his fellow-passengers on board the smack, he gives no record of his dealings with Mill.

Meanwhile the scene of his activity has changed. We left him, in the end of May, planning with Hunter the new edition of *Nature Delineated;* we find him in November, in the advanced stage of a project for a new literary periodical. The only assignable link in the transition is the fact that Hunter was seized with inflammation of the lungs and died at Bristol Wells on the 27th October. In the new enterprise Mill is in connection with Baldwin, a connection that became still closer and lasted his life.* We cannot tell whether Baldwin was one of the two booksellers that Hunter was employed by for *Nature Delineated;* nor how the scheme came to be exchanged for a periodical. That Mill had considerable faith in the success of a well-conducted useful knowledge periodical we saw before.

The work now planned, in which Mill was to be occupied as editor and contributor for the next four years, was *The Literary Journal.* In the prospectus drawn up by him, the key-note is:—the projectors "have long been of opinion, that a publication devoted to the dissemination of liberal and useful knowledge, on a more comprehensive plan than any which has yet appeared in this country, would, if rightly executed, be a work of great utility." A sentence relative to the more rapid communication of discoveries, hitherto overlooked by our periodicals, is very likely the insertion of Thomson. The work was to be arranged in four divisions—Physics (or Physical Science), Literature, Manners, Politics. Literature was pretty wide, including Theology, Mental Philosophy, History, Biography, Geography, Chronology, Travels, Criticism, Poetry, &c. An unoccupied department of literary criticism is pointed out, namely, to select and analyse such works as exhibit the literary spirit of the times. Manners was to cover all the refined amusements of the country, with dissertations on the usages of other nations. Politics kept out daily politics, and took in general views of Politics, Political Economy, Jurisprudence, and Police. The work, it is said, had received promises of support from eminent literary characters. It was to be issued weekly, in shilling numbers, commencing in January (1803).

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* The biographer of Dr. Thomas Thomson says that Thomson, on the faith of his reputation solely, gave him a letter to Baldwin, as he had done to Gifford.

The letter of 20th Nov. is occupied with the preparations, then far advanced. The prospectus is in course of circulation. Thomson is asked to see to the copies being distributed in Edinburgh and Glasgow; Mill himself is to attend to Aberdeen. The fear is expressed that it will be too expensive for Scotland: the Scotch, however, are familiar with the device of half a dozen persons clubbing for a periodical.

The arrangements for supplying the matter are still incomplete. Thomson, it is understood, has the whole scientific department on his shoulders; he was quite equal to it. All the scientific periodicals were ordered for his use. Some one that Mill does not yet know is engaged by Baldwin for the important branch of Manners. For Literature, one Macpherson, a Scotchman, is engaged; he is said to be writing a History of Commerce (no such work now traceable). There remain History, Biography, Travels; Theology, Philosophy, and original essays. He had advised Baldwin to apply, through Thomson, to Gleig, (the former editor of the *Britannica*). There was another Edinburgh friend, Mr. Christison, to be thought of. (There is an Alexander Christison, an Edinburgh author of this time). More help is to be found in Edinburgh than in London.

The letter alludes to the labour that had been gone through in correcting the prospectus. Thomson of course sent suggestions. Mill is pleased that so few things had been found to correct; Thomson's correcting all adopted, except where he wanted to erase the word "pleasure," as coupled with "advantage." Mill stands out upon this; people may be found to take a paper that promises *pleasure,* who are not much allured by mere advantage.

Our remaining letter of the year, 16th December, alludes to a previous one not preserved, which obviously treated of a hitch. "Matters will all be right." Thomson had evidently been busy in looking out contributors to fill the blanks. His own brother James is to do Literature and the Philosophy of Mind, to Mill's great satisfaction. Increasing distrust is shown of the London literary labourers; a great many proffered articles already rejected. Thomson is to use his judgment in employing "Darwinian Brown," or any other, for a purpose not stated. (This is obviously Thomas Brown, the metaphysician; "Darwinian" would be his Edinburgh nickname, from his juvenile work on Darwin's *Zoonomia*).

The prospectus is now afloat. The publisher has communicated with Ross and Blackwood in Edinburgh; Mill has written to Aberdeen. Thomson is to despatch the copies thither, and to leave some with Mr. Forbes at the Bank.

The letter goes on to express satisfaction at the success of Thomson's own book (*System of Chemistry*); the first edition nearly sold out. Advice to drive a good bargain over the second; to make the publishers pay sweetly for emendations. Buchan gets £20 for every amended sheet of his *Family Physician.* Had done something to get a publisher for a work of his brother James's (theological, no doubt); but too much of the kind in the warerooms already. Had lately met James's old pupil (Stirling of Kippendavie) at a ball.

He has now thoughts of taking chambers in one of the Inns of Court, and means to enter as a student of law next term (did neither).

This closes our record of this eventful year. Probably Mill wrote many things besides those that we have been able to trace: partly for newspapers and partly for reviews. He plainly intimates that he would go on with the *Anti-Jacobin Review.* But his energies and his hopes are concentrated in the success of his bold design. It was no small achievement for a young man to have induced a publisher to make the venture. But he had the power of getting people to believe in him. He was also cut out for a man of business, and shows it now as an editor; in which vocation, first and last, he must have been occupied for a good many years.

Accordingly, the year 1803 is marked by the publication of the *Literary Journal,* whose pages are our only biographical materials for that year. The letters to Thomson have unfortunately ceased. There are four letters to Barclay, but almost exclusively on family affairs, with occasional political allusions to the breaking out of the war. One dated 3rd January, 1804, informs us that he has been enjoying himself this Christmas season as well as the hurry of business would permit. It gives farther an account of his part in the general volunteering. "I have been a volunteer these six months, and I am now a very complete soldier. It has cost me a shocking sum of money however, not less I am sure than one-and-twenty or two-and-twenty guineas; and I have been one of the least expensive in the corps. We are still talking about the coming of Bonaparte. Whether he will come or not, God knows; but we are well disposed to receive him. We are 30,000 volunteers in London, and made a very fine figure when we were reviewed by the King in Hyde Park. Our regiment is altogether formed of Scotsmen, and was taken particular notice of by the King. When riding along the lines, he stopt opposite to us, and spoke several minutes to our colonel. I was very near, and heard him say: 'A very pretty corps, a very pretty corps indeed—all Scotsmen, my lord, all Scotsmen?'"

A cursory glance at the *Journal*, enables us with great probability to identify his contributions; and from these we can gather the course of his studies, and the nature of his views at this period.

Each number is methodically laid out, beginning with an article on Physical Science, by Thomas Thomson; the succession of articles being a regular course of the natural sciences. The other subjects in like manner have their appropriate places. In two successive numbers in January appears a complete view of the Human Mind, which I at first supposed, as a matter of course, was Mill's own, but found to be James Thomson's. There is a survey of the political situation of the chief modern nations, with a very detailed theory of the French Revolution; whether by Mill, I cannot say. The influence of his opinions must have told upon his contributors. His own hand appears most clearly in certain Historical and Biographical Reviews, which, however, make a small proportion of the journal; so that his labour must have been mainly editorial. If we consider that it was a shilling number issued weekly, that labour could not be small.

I give a few illustrative jottings. In a review of Tytler's *Roman History*, there is a strong protest against accepting the truth of the records of the kings, and of the transactions generally prior to the destruction of Carthage—almost exactly the position of Sir G. C. Lewis. A correspondent's attack on this article is vigorously met. Stewart's *Life of Reid* is reviewed; and some pertinent remarks introduced as to the necessity of tracing the early influences operating on the mind of the subject. The same strain recurs in other articles. An essay on the structure of the Platonic Dialogue may not be Mill's, but it must have been prompted by him. A paper occurs to prove that Utility is not the foundation of virtue; this might be editorial licence, and not necessarily his own opinions. The opening number for 1804 is a survey of the literature of the previous year. The review of the political works and the biographies is clearly Mill's. In reference to an affected life of Chaucer, which he condemns, there is this remark—"Religion without reason may be feeling, it may be the tremors of the religious nerve, but it cannot be piety towards God, or love towards man." A long review of Degerando may be his, but it is not specially remarkable. His hand is pretty evident in Theology, especially the apologetic treatises.

He views all such treatises with constant misgivings; remarks how seldom defences of Christianity answer their purpose, and advises writers to adhere more to one another.

In connection with the long standing discussion on the Corn Trade, he published a pamphlet in 1804, entitled, *An Essay on the Impolicy of a Bounty on the Exportation of Grain, and on the Principles which ought to regulate the Commerce of Grain.* This pamphlet I have not seen; it is given by Macculloch in his *Literature of Political Economy.* It is the earliest known publication bearing his name.*

He continues at the *Journal* through 1805. This year he published his translation of Villers's work on *The Reformation,* a task that must have occupied a good deal of his time: it is a volume of 490 pages. The original work was written for a prize proposed in 1802, by the Institute of France: the subject was—"What has been the influence of the Reformation of Luther on the Political situations of the different States of Europe, and on the Progress of Knowledge." In the preface to the Translation, Mill states that the subject attracted his interest at the time it was propounded, as a proof of liberality of view on the part of an assembly belonging to a Roman Catholic country (surely this could not be wonderful after the French Revolution). His surprise was increased by the work itself, which was an unsparing display of the vices of the papal system, and an impartial view of the blessings of the Reformation. Accordingly he undertakes the translation, and adds copious notes, embracing quotations from English authors as well as observations of his own. He looks upon the publication of the work as important in its bearing upon the much agitated Catholic question in Ireland; and thinks that if Catholics were once put in a position whence they would no longer regard Protestants as their enemies, they might be reasoned out of their Catholic predilections by such a work.

The notes give a very good idea of Mill's reading and favourite authors at the time. Long quotations occur from Dugald Stewart, George Campbell, Millar, Robertson, Hardy (his old Professor of Church History). He reinforces all the author's expressions as to the value of free inquiry. He has a very indignant and disparaging note on Voltaire:—"His authority is of very little value;" "he used not only lawful but poisoned arms against religion and liberty:" "anything that would abate the admiration so long attached to his works, would be a public benefit." (Notwithstanding all this, Mill was an assiduous reader of Voltaire.) Another curious note, (p. 304) takes Villers to task for speaking of the books of the Bible as mere scraps of the literature of distant ages. "These books comprise the extraordinary code of laws communicated by a benevolent divinity to man." "I am unwilling to ascribe infidelity to any man who does not give certain indications of his being an unbeliever. But I could not allow expressions concerning the Bible, which appear to be not sufficiently respectful, to pass without notice." Villers is also reproved for being a Kantist.*

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* In Alibone's enumeration of Mill's publications is placed first—*An Examination of E. F. Jones's System of Book-keeping,* 1796." I have no information as to this work. It is not in the catalogue of the British Museum.

Villers's book must have been part of his occupation in 1804. The solitary letter preserved for this year gives his mode of spending his day: "Breakfast, and to his office as usual about 8 (office of the *Journal*, presumably at Baldwin's, Union Street, New Bridge Street, Blackfriars Bridge); dined on the way home (by the Strand); read or wrote with great diligence till towards seven; had tea with his fellow-lodger; walked two hours; studied till between eleven and twelve." On the evening of writing the letter, his reading was Xenophon, περι οἰκονομίας. This was in the midsummer heat (6th July). Holidays were unknown things to Mill.

To the year 1805 and two if not three subsequent years attaches another of Mill's engagements, the editorship of the *St. James's Chronicle* newspaper; on which there is nearly as great darkness as on the Scotch tutorships. It was known in his family that he had edited this paper, but the fact was never mentioned by himself, and rarely alluded to by any one. The paper was started in 1761, and continued till a few years ago, as a clerical and conservative journal. On this footing, Mill's editorship seemed a discord. As Baldwin was the proprietor of the paper (it was in the Baldwin family long before), the connection is explicable enough. The only trustworthy tradition in the matter makes him editor at the time of his marriage, which took place this year; so that he carried on the *Journal* and the *Chronicle* together. Proceeding upon this fact, I turned over the file of the *Chronicle* for 1805-6, if possible to track his presence. The paper was published every second day. The only part that could give any inference was the leading articles. To newspapers readers of the present day it needs to be explained that the leading article of those days (at any rate in the *Chronicle*) was a very puny affair; very like the introductory Notes now given in the *Spectator*, but fewer of them. Generally speaking there was one such article or note; very rarely did it amount to a discussion or an argument; most usually a brief recital and slight comment on the chief topic of the day's news. Now and then, once in two or three weeks, there was an article of half a column or three-quarters: when the editor rose to his legs, and descanted in earnest on what was doing. Of course, this at least would be Mill's work as editor: how much else he did, we cannot know. Taking then the file for 1805, the first thing I noticed was (January 8) a pretty severe handling of Pitt in connection with Taxes on Knowledge. On February 9, the suspension of Habeas Corpus in Ireland is styled a melancholy transaction. On February 19, Pitt's war-tax on farm-horses is condemned. Generally speaking, the criticism of the Government is fair and candid. On March 23, the comments made on the recently granted Dutch constitution accord with what we should have expected. In April occurred one of the great episodes of the Liberty of the Press, second only to the trial of Peltier two years before. A Tory journal (*The Oracle*) had used very disrespectful language towards the House of Commons with regard to the proceedings against Lord Melville. On the 25th of April, Mr. Grey brought the article under the notice of the House, and moved that the proprietor of the paper be called to the bar. Long debates followed. The proprietor was called to the bar, reprimanded, committed, and afterwards set free. The proceeding was supported by the Whig party. In the *Chronicle's* article on this affair (April 27), I think James Mill's hand is apparent: the defence of liberty against all the plausible pretexts of Grey and Fox is to my mind conclusive. In some other articles, I fancied I could discern his hand, but the conduct of the paper is marked by the absence of pronounced opinions. There is no truckling to the ministry: neither is there any violent condemnation. Mill certainly did no discredit to himself by the connection. Possibly, as an ardent liberal politician, there were many occasions when he would have wished to say something, but was not at liberty. Certainly, the worst that could be said of the paper in those years was that it was milk-and-water. To obtain some clue to the beginning and end of Mill's connection, I examined, along with a sagacious friend, the file for a number of years. The date of his commencing cannot be shown by any transition in the style of the editorial remarks; but it could not well be before 1805. In 1807 there are traces of his hand;* he continued in all probability till towards the close of 1808. He is conspicuous by his absence in the notice taken by the paper of the celebrated proceedings in Parliament (1809) against the Duke of York for the deliquencies of Mrs. Clark.

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* He was the author of a book on the Philosophy of Kant, (Paris, 801), on which Thomas Brown wrote a long condemnatory criticism of Kant, in the first number of the *Edinburgh Review*.

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* This passage is very like him (July 7, 1807), on Whitbread's motion

I shall now dispose of the last year of the *Literary Journal*, 1806, which contains a good many interesting matters. After going on three years, as a weekly, it now starts as a monthly, and is designated "Second Series:" the general plan being varied. It is said in the memoirs of Dr. Thomas and Dr. James Thomson, that they both ceased to contribute in the end of 1805; I should think it more probable that they went on to the last. The editor would have had great difficulty in replacing Thomas Thomson as his chief scientific contributor.

An article on Tooke's *Diversions of Purley* is obviously Mill's own; while approving much, it contains his characteristic handling of abstract ideas. Dugald Stewart's pamphlet on the renowned Leslie case comes up for notice; and, strangely, the reviewer takes the side of the clergy against Stewart and Leslie. This must have been from an Edinburgh contributor, whom Mill accepted *simpliciter*. In a review of Good's *Lucretius* the attempt to show that Epicurus was not an atheist is refuted with scorn. In the February number, as the leading article, Payne Knight's *Principles of Taste* is handled at length and with great severity. There is a somewhat elaborate review of Sir James Stewart's writings on Political Economy; the conduct of the French Monarchy towards Sir James himself is freely commented on. A volume of sermons by Sir Henry Moncrieff Wellwood is praised; said to contain fewer absurdities than usual, but yet a sufficient number to make the author inconsistent. In the review of an anonymous pamphlet on the state of Britain at the close of Pitt's administration in 1806, the writer is very pungent and severe on the East India Company. A notice of Professor Playfair's pamphlet on the Leslie controversy declares both sides in the wrong (might be

for an inquiry into the state of Public Affairs:—"In regard to the debate of last night, it is a matter of trivial consequence. It is easy to see that it would contain merely an attempt on the one side to prove that the nation was very safe in the hands of the late ministry, and in great danger in the hands of the present ministry. The people, on the contrary, seem to be of opinion that it is not in very good hands between them both. We may rest assured that that great circumstance by which the happiness of the nation is chiefly affected, the grievances and unparalleled taxation under which we groan, was not placed foremost in the rank of national dangers, and pointed out as the first and most indispensable work of reform. Till this become earnestly and effectually the subject of deliberation, the affairs of the nation will continue to move in the direction which they have lately and for some considerable time pursued."

Thomas Thomson). The writer objects to the use that had been made of Principal Robertson's name by the combatants; and affirms that the Principal, in exerting his influence in the appointment to Chairs, put great stress on the religious views of the candidates (if he knew them.) A work on Intellectual Philosophy, by Robert E. Scott, Professor in Old Aberdeen, is praised as of no ordinary class. The arrangement of the intellectual powers differs from Reid and from Stewart and is superior to both, but still wants a combining principle. The work is calculated to be extremely useful. There is no mistaking the review of Millar *On Ranks*. Judging from the two works—*On Ranks*, and *On the English Government*, we shall be disposed to reckon the lectures of Millar "as among the most instructive things that were ever offered to the minds of youth." Much dissatisfaction, as usual, is expressed with the biography. I wish I had room for a passage on the duties of a biographer in reference to the early history of men of eminence: the readers of the present sketch would then justify me in protesting that, if a biographer has his duties, he has also his rights. Almost every one of the requisites here put down, Mill has in his own case (and he quite looked upon himself as a man of eminence), by studious concealment, rendered it all but impossible to supply. The next article that I account his with certainty, is on Sir William Forbes's *Life of Beattie* (Sir William was the father-in-law of his favourite pupil and friend); and he again goes into the scope and sources of biography, and complains of the hurrying over of Beattie's life previous to his becoming professor in Marischal College, when it becomes profuse enough. He notices at some length the reception of the *Essay on Truth* in England. The article is another of the many indirect indications that Mill must have resided at one time in Aberdeen; the writer is thoroughly at home in local gossip about Beattie. He talks of an impression very general among the people about Aberdeen, that Beattie dangled too much after the Duchess of Gordon; and remarks, as if from personal knowledge, that Sir William has not shown great exactness in giving the style and manner of Beattie's conversation. In an article on Milton's Prose Writings, there is a defence of his public character and also of his conduct to his wife and daughters. In reviewing Woodhouse *On the Apocalypse*, the critic gives an unceremonious go-by to all the author's orthodox conclusions. *Apropos* of Filangieri's *Science of Legislation*, there is a long review of the provinces of Politics and Political Economy. In Van Mildert *On Infidelity*, the reviewer praises the author's intention and the execution of the work, but throws cold water on every one of the arguments against infidels. We unexpectedly find an article on Malthus, full of sentimental horror of his opinions. Brackenbury's *Discourses on Christianity* receives the usual carping at all the arguments on the Christian side. On Colquhoun's *System of Education for the Labouring Poor*, there is a pretty full article, arguing the whole question of Education in Mill's usual style.

If we allow for the double editorship of the *Journal* and the *Chronicle*, the contributions that we have pronounced to be Mill's own represent a pretty hard year's work. This was the year after his marriage, and the birth-year of his first child. We can see further how thoroughly he impregnated the *Journal* with his own views on the greater questions. The attack on Malthus was an exception, if he was then a Malthusian; but, whether he was or not, the rousing of sentiment against reason was repugnant to his whole being, so far as we know anything about him.

At this stage we are called upon to give some account of his marriage and domestic relations. Soon after coming to London he became acquainted with a family named Burrow, who kept an establishment for lunatics in Acton Place, Kingsland Road, Hoxton.

The head of the family was dead, but the establishment was conducted by his widow, whose ability was equal to the occasion, and under her management the institution was prosperous. She had two sons and three daughters. She came originally from Yorkshire, and was a woman of great beauty, a circumstance which re-appeared among her children. In 1804, Mill was engaged to be married to Harriet, her eldest daughter, then in her twenty-second year (he thirty-one). She was an exceedingly pretty woman; had a small fine figure, an aquiline type of face (seen in her eldest son), and a pink complexion. One letter of Mill's to her she preserved, as perhaps the fullest and strongest of all his affectionate outpourings. The depth and tenderness of the feeling could not well be exceeded; but, in the light of after years, we can see that he too readily took for granted that she would be an intellectual companion to himself. Without anticipating the view of Mill's domestic interior, as it appeared when he was surrounded by a numerous family, I may say at once that Mrs. Mill was not wanting in any of the domestic virtues of an English mother. She toiled hard for her house and her children, and became thoroughly obedient to her lord. As an admired beauty, she seems to have been chagrined at the discovery of her position after marriage. There was disappointment on both sides: the union was never happy.

They were married on the 5th June, 1805, and took up their abode in a small house, 12 Rodney Terrace, Pentonville (an interpolated house makes the number now 13). As his wife's marriage portion, under her father's will, Mill received £400. The house was bought for him by Mrs. Burrow, to whom he paid a rent of £50 a year.

Coming from a well-to-do family, Mrs. Mill would bring with her a good outfit. There was thus ample means of beginning housekeeping, without the drag of being in debt; and Mrs. Burrow was always ready to assist her daughter in her struggling years.

A younger sister of Mrs. Mill, who was never married and died last year at an advanced age, retained a distinct recollection of the marriage and the early circumstances of Mill in connection with it. We know independently that he was editing the *Literary Journal;* we have the highest circumstantial evidence of his being also editor of the *Chronicle;* and the traditions all agree that he was then obtaining £200 a year for *an* editorship, though the double editorship was not clearly conceived, and the salary was spoken of sometimes as attached to the *Journal* and sometimes to the *Chronicle.* By Miss Burrow's account, Mill stated to her mother that he was capable of earning £500 to £800 a year. If he held both editorships in 1805 and 1806, his income in those years ought certainly to have exceeded £500 a year. If he continued the *Chronicle* two years longer, he would still without difficulty earn £300 or £400. Mrs. Mill, by her sister's account, was very sorry when he gave up the *Chronicle;* it made of course a great difference in their means, as it left him, for the time, nothing that we know of but Review-writing, from which the income stated by him was simply impossible.*

The giving up of the *Journal* at the end of 1806 being unexplained, we may assume that it was not a success. It became in the second form so like the other magazines, of which there were plenty, that, however well it might have been got up, it could not command a very large public. Moreover it had a large tincture of Mill's own severe views both in politics and religion. In the biography of Thomas Thomson it is said, the *Journal* "ultimately ceased in consequence of the conductors being engrossed by more profitable employment." This did not to all appearance apply to Mill.

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* Mill came to have nine children :—1. John Stuart, born 1806 (20th May). 2. Wilhelmina Forbes (named from Sir John Stuart's daughter) born 1808; died 1861. 3. Clara, born 1810. 4. Harriet, born 1812. 5. James Bentham, born 1814; in Civil Service of India; died 1862. 6. Jane (named from Lady Jane Stuart), born 1816. 7. Henry, born 1820; died 1840. 8. Mary, born 1822. 9. George Grote, born 1824; entered India Office; died 1853.

At their father's death, all the nine were alive; and except James, who had gone to India the year before, they were all at home, and had been so almost throughout. None of the sons left children to continue the name. Four of the daughters were married, and three had children.

The commencement of the *History of India* dates from the end of 1806. We can see distinctly from his first letters that writing some permanent works was a part of his plan of living by literature; and it was by the help of paying books that Bisset and others made their seven or eight hundred a year. But then a man must find the means of support in the interval. Mill's calculation was that in three or four years he could finish such a history as he projected. He probably saw his way well enough to maintaining his (as yet) small household by his savings and by the work that he proposed to do along with the History. The utter failure of his calculations—the demand of twelve years' labour instead of three—may be taken as the sole and sufficient explanation of what he had to endure in regard to his means of support. Writing in October 1816, he says of the History:—"Thank God, after nearly ten years since its commencement, I am now revising it for the press. Had I foreseen that the labour would have been one half, or one third, of what it has been, never should I have been the author of a History of India."

In 1807 a pamphlet appeared by William Spence, entitled *Britain, Independent of Commerce.* It was immediately met by a rejoinder from Mill, in a pamphlet of 154 pages, in fact, a book. The title is *Commerce Defended: An Answer to the Arguments by which Mr. Spence, Mr. Cobbett and others have attempted to prove that Commerce is not a Source of National Wealth* (first edition, 1807; second edition, 1808). The Introduction states the motives of the writers attacked. "People are always gratified by paradoxes, and this paradox coming at a time when the commerce of Great Britain was in extreme difficulty and peril, it was consolatory to be enabled to believe that we shall not suffer by its loss." Mill was followed in the same strain by Colonel Torrens, then commencing his career as a political economist.

Of his contributions to the periodicals in these years, we know almost nothing. There is no indication of his continuing to write for the *Anti-Jacobin Review*. It is said on good authority that he contributed at various times to the *British Review*, the *Monthly Review*, and the great organ of the Evangelical Dissenters—the *Eclectic Review*. I have heard John Mill speak of the *Eclectic* as one of his father's chief connections when writing for Reviews. I could not undertake to trace his hand in any of the periodicals named, without at least some special guidance as to the dates of his articles. In the *Eclectic*, he would have to restrain some of his more marked peculiarities. On referring to the volumes of these various Reviews about the years when Mill may have been a contributor, I was deterred by the multitude of short articles that would need to have been studied.

Most important for us are his articles in the *Edinburgh Review*, of which eight are identified by the fortunate circumstance that his warm admirer, Mr. Grote, cut these out and bound them in a volume. The articles range from 1808 to 1813, and are probably all that he himself chose to set any store by, or to single out at a later period in answer to the inquiries of his disciple. They embrace the leading subjects of his writings in those times—Political Economy, Politics, Jurisprudence, Toleration, Education. The only subject notably absent is Mental Philosophy, which, however, would appear to be in abeyance with him during all those laborious years of the *History*.

I now go back to gather up the little additional information that we possess up to the end of 1808, which is a convenient milestone in the narrative.

Only two letters exist for the two years, 1806, 1807; they are to Barclay. The second, 7th Feb. 1807, is suggestive:—"I would have written to you long ago, had I not been unwilling to put you to the heavy expense of postage (over a shilling to Forfarshire.) I have been in good health, and going on in my usual way ever since you heard from me (4th April, 1806). I had a letter about the beginning of the winter from Mr. Peters (parish minister), which informed me that you were all well, and managing your affairs with your usual prosperity, which, you may believe, gave me no little pleasure to hear. I should be happy to see it too. Have you no good kirk yet in your neighbourhood, which you could give me, and free me from this life of toil and anxiety which I lead here? This London is a place in which it is far easier to spend a fortune than to make one. I know not how it is: but I toil hard, spend little, and yet am never the more forward.

The remainder refers to his father's affairs which brought upon him a demand for £50: "If I am obliged to find the sum, it will not a little distress me." As he could have only very lately begun to divert his strength to the unproductive labour of the *History*, we cannot suppose him in want of means, but to any man in his circumstances a sudden demand for such a sum might be unhinging. His only family burden yet was a healthy, fair-complexioned, bright-eyed, sweetly-smiling babe of nine months.

This year, Sir John Stuart was withdrawn from Parliament, by being appointed a Baron of Exchequer. The circumstance made a considerable blank to Mill. Sir John brought him every year the local doings, in which he never lost interest; and all through the session they were constantly coming together. Mill's radicalism was no stumbling-block in the way of their attachment. Subsequent to 1807, Sir John's visits to London were only occasional, but they invariably took him to Mill's house. The surviving children can remember his latest visit in company with Lady Jane. It was his own special wish that the eldest child should bear his name.

Of his friends and associates up to this time, we have only incidental mention; but he had a very extensive acquaintance among London literary people. A man could not be an editor for four or five years without knowing nearly everybody that drove the literary pen. His decided dislikes kept him at a distance from many of them; and his want of time from others. His unpopular name is the reason why in the records of the time, the allusions to him are not in proportion to the power that he exerted.

A. Bain.

(*To be continued.*)

VII.—PHILOSOPHY IN LONDON.

The readers of this journal have now had set before them reports on the past and present state of philosophical study at the ancient English universities, and at the younger but still venerable sister-university of Dublin. There are other academic seats in the country that have a history of philosophical achievement, and are now active towards issues which it is important to understand. But in the present series of articles there may be some advantage if, before passing to the Scottish universities, and thence extending the survey abroad, attention is drawn to the state of philosophical study in London, which is itself the seat of a university, and one moreover that has been called into being within the last half-century expressly to meet the wants of these days.

London is the seat of a university, yet one can hardly speak of philosophy *at* London as *at* Oxford, Cambridge or Dublin; and why? Its mere size, vast beyond comparison though it be, need not keep it from being identified with a university, when other great capitals are rendered illustrious by nothing more than their academic fame. Nor is it necessary that a university should have sprung up in a bygone age to become the genius of the place: the University of Berlin is but a few years older than the University of London. Rather must the reason be sought in some special disproportion between this university and its metropolitan seat.

The University does indeed occupy no very prominent position in London. An examining board which does its work, for the most part, out of all relation to such instruction as the place affords, cannot, whatever its merits may be, play the part of a great informing power whose influence is felt throughout the whole intellectual life of the place. Merits the University assuredly has, and not least as regards the encouragement of philosophical study, but they avail nothing to bring it into prominence in the world of London. What it accomplishes it does for the remotest corners of the country, nay, for the very ends of the earth, as much as for London; and let who will make light of an influence so wide. Yet, if it accomplishes for London nothing more than for the ends of the earth, one sees perhaps how it may bear its name in vain—how the higher education in London itself may be starved for the benefit of unattached learners up and down the country or the alien.

The University of London, now fixed in Burlington Gardens, was not the first bearer of the name. The title was originally assumed by a different institution, which, projected in 1825, and established in the imposing building in Gower Street before the end of 1828, was finally constituted under its present name of University College in the same year, 1836, that first saw a university founded in the metropolis with the legal privilege of conferring degrees. The original (self-styled) London University was meant to be a university in the Scottish or German sense. Being designed in the first instance for the education of those who by reason of religious restrictions or otherwise were excluded from Oxford and Cambridge, it naturally looked elsewhere for its model. The instruction, duly supplemented by written and oral examinations, was to be given by public professorial lectures, in place of the tutorial system predominant at the older universities. On the other hand it was far removed from that notion of a university which time and circumstances have actually realised in London. It was to be first and foremost a place of instruction in all the higher departments of knowledge—a true centre of enlightenment befitting the greatness of the capital. The degrees which it hoped to obtain the right to confer were to be given in relation to instruction only. At the same time its scheme of instruction bore one distinctive feature. It was not only, like some other universities (the German and, practically, the Scottish) to assume no charge of the religious education of its students, leaving this to their natural guardians, but it was to have no theological department of instruction. There was no need, its projectors thought, to undertake a function as regarded the Established Church that was more than provided for at Oxford and Cambridge, and there was no possibility of devising a common system of theological instruction for the variety of sects that would be its first constituents, or for the variety of races that might be attracted to a metropolitan seat of learning. The very circumstances and conditions that necessitated the founding of a new seat of superior instruction for whole classes of the community cut off from all chance of higher culture, seemed to impose the exclusion of theology from the scheme.

The claims of Philosophy as a means of liberal education were least likely to be overlooked, for among the founders of the new institution were James Mill and Grote, then a young man much under the influence of the elder thinker. In the first *Statement*, issued in 1827, respecting the nature and objects of the foundation, there were announced among the professorships to be instituted one of Logic and Philosophy of the Human Mind, and one of Moral and Political Philosophy (besides a chair of Political Economy). "As the Physical Sciences aim at ascertaining the most general facts observed by sense in the things which are the objects of thought, so the Mental Sciences seek to determine the most general facts relating to thought or feeling, which are made known to the being who thinks by his own consciousness;" and the *Statement* goes on to explain how, though "the subdivision of this part of knowledge would be very desirable on account of its importance and intricacy," it would in the first instance be provided for by the chair of Logic, while the chair of Moral (and Political) Philosophy would deal with Ethics as distinguished from the other moral science of Jurisprudence, which would also claim the attention of the general student. A *Second Statement* (1828), explaining in great detail the plan of instruction to be followed in the University, declares in relation to the two professorships that, though the names Logic and Moral Philosophy "are neither correctly indicative of the parts of learning to be expressed by them, nor is such a distribution of the subject thereby effected as strict science would demand, the Council have deemed it better to adopt them because known and received, than to venture upon others which, if they were less imperfect, would probably, because more strange, be less acceptable." "The Logic Class will have for its province that department of mental phenomena in which all that relates to knowledge or the acquisition and formation of ideas is concerned. The Moral Philosophy Class will have for its province that department of the mental phenomena in which all that relates to action is concerned; or, more properly speaking, those peculiar states of mind which are the immediate antecedents of our actions, and from which we therefore say that our actions proceed." It was added that as in these classes the youthful mind was introduced for the first time to the great mental processes of Generalisation and Abstraction, there was "more than usual occasion for constant examination, for the frequent prescription of written exercises, and for all the operations of that active study which more speedily imparts a mastery over a new set of ideas than passively listening to a lecture or perusing a book;" accordingly, a more than usual portion of time would be set apart for those purposes. No less than two hours (one for examination, &c.) every day were to be given to Logic and Philosophy of the Human Mind in the student's third year (along with Chemistry and Natural Philosophy), and nearly as much time to Moral and Political Philosophy in the fourth year (along with Jurisprudence, Political Economy and Natural Philosophy). There are those who will be interested to read of so serious a scheme of philosophical instruction being at that time propounded in London, and I have therefore quoted from the *Statements* at some length —all the more because the scheme was one that in the event did not find favour with the fates. In making the appointment to the chair of Philosophy of Mind and Logic (as later it came to be called), differences of opinion revealed themselves within the Council which kept it unfilled till 1830, when it was assigned to the Rev. John Hoppus, a follower of Thomas Brown in philosophy, who continued to hold it till 1866 in the teeth of circumstances that could hardly have been more adverse to the cause of philosophical study. The chair of Moral and Political Philosophy has never been filled to this day.

The scheme of philosophical instruction did in truth only share the evil destiny reserved for the whole project to establish in London a true seat of academic influence. It was certainly no mean intelligence that dictated the lines of the project, as any one may yet see who will read the remarkable *Statements* issued by the Council of the new institution; and at first everything promised well. The founders, if they underrated the natural obstacles in the way, had some reason for indulging in their hopeful, not to say sanguine, visions of success. The proverbial schoolmaster was then fairly abroad, and there was need of the professor to finish his work. Nor was there wanting to the projected London University the countenance of some in the highest place, and of more who were marked out for power in the coming days of political reform. A sum which reached the figure of £160,000 was quickly subscribed for the rearing of an appropriate edifice and for the due equipment of an instructing staff, which included some of the most distinguished names of the day in literature and science. And yet the project failed to make way. It roused the bitterest political resentment because there were radicals among its founders, and unmeasured scorn was poured on it because it counted on support from the religious dissenters. The exclusion of theology, however anxiously explained to be inevitable, of course meant a godless institution, and straightway its foes were moved to establish another seat of superior instruction in London of which theology should be the corner-stone. Hardly had the so-called University opened its gates in Gower Street, when King's College was set up as a rival in the Strand; and London, which till then had been devoid of the means of higher education, found itself all of a sudden provided not with one academic institution but with two. Political and religious contention could in a year overdo what centuries had left undone. The young institution was from the first prevented from becoming the great metropolitan centre of instruction which was the main part of its design; and, in as far as it aimed at securing the legal status of a university with degree-conferring powers, it was doomed to be still more effectually thwarted. The Universities of Oxford and Cambridge would not do the work it was struggling into being to perform, but they could stoop to crush the semblance of a rival. When the Government (even after the foundation of King's College) was on the point of granting a university-charter in 1830, it had to be dropped at the last stage, just before passing the Great Seal, because Oxford objected to the liberty of conferring degrees in arts, and Cambridge would not hear of degrees being granted at all. Again moved for about two years later, the grant of a charter was again opposed by the same jealous influences, as also (with more reason) by the medical corporations and schools in London. To obviate the opposition of these last the claim to give medical degrees was surrendered, and the House of Commons in the first reformed parliament (1833) supported the petition as regarded degrees in arts and laws by a great majority. The Government, however, though not unfriendly, was in a real difficulty by reason of the existence of King's College, which could not be left out of account while it could neither be merged with the "London University" nor incorporated separately with full academic privileges. The only course that seemed open was to create a university over the heads of both institutions, which should have the sole duty of examining while they should have the sole function of giving instruction. In this sense accordingly a resolution was taken, and the University of London was formally constituted in 1836, the parent-institution being at the same time regularly incorporated as University College. The exclusion of theology from the University as finally constituted gave authoritative sanction to the principles that had guided the original movers in their single-minded effort to found in London a home of the higher learning befitting the capital of the country; and it was with the hope of seeing their dream after all realised that they accepted without a grudge for their costly institution a secondary rank in the academic system. In point of fact, it was still possible that a University in the fullest sense should grow up in London between the new examining board with its State-privileges on the one hand and the two Colleges as they might be developed on the other. But, while nothing more was done either by the State or by private munificence to support and develop the instruction of the Colleges, it had been provided in the charter of the University that other institutions in or *out of* London might be affiliated to it, and this provision lay so little dormant that in the next twenty years a host of colleges and secondary schools scattered through the country acquired an equal right with the metropolitan Colleges to send up candidates for examination. There was then an end of the dream. The University might or might not have a useful work to do in the country, and might or might not do it; but it could never more hope to sway the intellectual life of London.

Such as it was during those twenty years, the University of London did by its system of examinations do something to bring forward Philosophy as a subject of study. Every candidate for the B.A. degree was required to pass in Logic and Moral Philosophy, and a man's position here was taken into account in determining the honours-list in classics and mathematics. The higher degree of M.A. might be obtained by a special line of study which consisted of Logic, Moral Philosophy, Philosophy of the Mind, Political Philosophy and Political Economy. Further, the noteworthy regulation was enforced from the beginning that Doctors in Medicine should pass an examination in the Elements of Intellectual Philosophy, Logic and Moral Philosophy, unless they had previously taken a degree in arts. The actual requirements, however, within this scheme were trifling enough. Bachelors of Arts were expected only to have read part of Whately's *Logic*, and, in Moral Philosophy, part of Paley's treatise, with Butler's three Sermons on Human Nature. For the degree of M.D., the examination, at first left open to the discretion of the examiners, came in time to turn upon the first book of the

Novum Organum, Cousin's Analysis of Locke's *Essay*, the first part of Butler's *Analogy*, and Stewart's *Outlines of Moral Philosophy* (not so mean a prescription of its kind). The M.A. examination remained nominally open, but from the years 1842-3 onwards till 1857 the examiners, Mr. T. Burcham, a police magistrate (who also did duty in classics), and the Rev. Henry Alford, afterwards Dean of Canterbury, were never changed—with the natural result as regards range of topics. The effect upon instruction as given in the metropolitan Colleges may easily be understood. No candidate preparing for the B.A. degree from University College had the least occasion to attend the professor's lectures on Philosophy of Mind and Logic, and accordingly the professor, having no hold upon the only auditors on whom he might regularly count, lectured during all those years to very thinly covered benches. King's College, which had started without any chair of Philosophy and obviously set much less store by the subject, was not moved now to acquire an interest in it and went on without any means of philosophical instruction.

No change of any importance was made in the system of philosophical examinations as at first constituted, till under the new charter (April 9th, 1858) the decisive alteration in the status of the University was consummated, whereby it was cut loose from all connection (except in the medical department) with particular places of instruction, metropolitan or other. While the question of the new constitution was still pending, in 1857, the examiners in Logic and Moral Philosophy, Messrs. Bain and Spencer Baynes, then newly appointed in place of the two who had acted together for so many years, addressed a formal representation to the Senate on the state of the examinations and submitted a very different scheme, which, with some amendments, was finally adopted at the end of 1858 and has since remained in force without further change, except as it was made to apply to the degrees in Science instituted in 1859. By this time Mr. Grote, having brought his History to a close, had become one of the most active members of the Senate (which he joined in 1850), and his interest in Philosophy, always great yet growing ever stronger with his years, led him to take special charge of the proposed scheme so long as it remained under discussion. As the University was about to admit all comers to its examinations, it was important, while substituting a scheme of reasonable extent in place of the old one, so to frame it as to encourage a resort to systematic instruction; and to this end it seemed the most effective course to prescribe no particular books but simply to indicate, as the new examiners proposed, a range of topics representing the main divisions of progressive philosophical inquiry. The scheme propounded, and at first designed to bear the new title of "Logic and *Mental* Philosophy," was however vehemently opposed by some of the affiliated Roman Catholic Colleges on the ground that Mental Philosophy (embracing, as was stated, the Senses, the Intellect and the Will) was a department of knowledge little less vexed by polemics than theology itself, so that the examiners for the time being would be made judges of philosophical orthodoxy; and also on the ground that, even if no such evil result ensued as the propagation of a system and the creation of a London University school of Philosophy, yet Catholic students would be placed at a disadvantage, being precluded from the study of modern psychological theories till an advanced period of their course, after they were indoctrinated in the body of philosophical truth ancillary to the Theology of the Church (*Minutes of the Senate*, 1858, p. 87). It was implied, if not expressly asserted, that the previous scheme, prescribing some parts of Whately, &c., was unobjectionable—probably because of its triviality. The *Minutes* (Dec. 15, 1858) contain a very remarkable statement penned by Mr. Grote in reply to the objections; and what he urged against the notion of the least design to impose with the weight of University authority a particular view of philosophical orthodoxy, has certainly been borne out by the selection of examiners (no one of whom can serve more than five years running) from that time till the present. Professor Spencer Baynes, one of the present two examiners, has been as much in favour with the Senate as Professor Bain, and the others, in order of appointment, have been the late Professor Ferrier, Mr. Poste, the present writer, the Rector of Lincoln, Mr. Venn and now Professor Jevons.

The principle of the scheme of examinations in Logic and Moral Philosophy (the old title being in the end retained), as it came into full working order from the year 1860, is a very intelligible one. A mininum requirement for the degree of Bachelor of Arts, or of Science, is variously extended and intensified for the grade of Bachelor with Honours and for the higher degrees of M.A. and D.Sc., while it is (in practice) somewhat attenuated for the professional degree of Doctor of Medicine or Master of Surgery. The University of London exacts a certain amount of philosophical knowledge from every Bachelor of Arts as part of a general liberal education, and from every Bachelor of Science as part of his general scientific equipment. "Names, Notions and Propositions, Syllogism, Induction and subsidiary operations" mark with sufficient plainness the scope of the examination in Logic; and the heads "Senses, Intellect and Will, including the Theory of Moral Obligation" show that Moral Philosophy is understood in the wider sense of Mental Philosophy, while this last is interpreted chiefly as Psychology. Bachelors, whether of Arts or Science, may thereupon subject themselves to a more protracted (two days instead of one) and severer trial in the same subjects, supplemented by the topic of "Emotions," and with the "Theory of Ethics" brought into greater prominence: a scholarship of £50 for three years may here be gained. The Bachelor of Arts who now proceeds (after not less than eight months) to the special degree of Master will, if he chooses Branch III., be subjected (for three days) to examination in the old topics (only Ethical *Systems* instead of *Theory*) supplemented by a special prescription, varied every year, in Political Philosophy and History of Philosophy,* besides Political Economy (one day): here may be won a gold medal worth £20. The still more special degree of Doctor of Science, open only to Bachelors of Science of not less than two years' standing, may be taken in "Mental Science," with the main topics as for M.A. set out as principal subject, and the following as subsidiary subjects—"Physiology of the Nervous System and Organs of the Senses in man and other animals, History of Philosophy, Political Philosophy, and Political Economy" (in all four days): "a thorough practical knowledge of the principal subject and a general acquaintance with the subsidiary subjects" are here required. Finally the degree of M.D. or M.S. cannot be obtained without a philosophical examination (three hours), of which the nominal scope coincides with that for the B.A. or B.Sc. degrees, though there is a tacit understanding that those aspects of the subjects should chiefly be considered that are least remote from the field of medical practice.

The scheme, it will hardly be denied, is not only clearly conceived but betokens a real concern for the promotion of philosophical study and work. That Philosophy should form part of every liberal education (B.A.), and that it may then well engage the special attention of more advanced students (M.A.) before taking up with a particular profession; that Psychology and Logic have their place in a general scientific discipline (B.Sc.), and that mental research in one or other of its departments may claim the life-long devotion of trained scientific powers (D.Sc.); lastly, that every medical man who aspires to the higher dignities of his profession (M.D., M.S.) should have bestowed some express thought on the laws of evidence and on the hidden mental life inwoven with the bodily frame—such is the meaning of the scheme; and where is there another university that makes so systematic a stand for the cause of Philosophy in education? It should not be forgotten that even in the early years of the University the importance of the subject had been, in name at least, recognised, in deference, it may be supposed, to the principles of the original movers for university-education in London; and thus it was easier for an earnest friend of philosophical study like Mr. Grote, himself one of them, to get the reformed scheme in its completeness set on foot when the new constitution imposed upon the Senate the duty of making the examinations at once broad and effective. On looking, however, beyond the scheme itself to its actual working, there seems less ground for satisfaction, and the reason will perhaps be found to lie in that very peculiarity of constitution with reference to which the scheme was so carefully devised. The Senate would no longer require of candidates for degrees that they should have been instructed in particular colleges; but it hardly expected that a great proportion of them would cease to frequent any place of instruction. It started with an earnest determination to maintain a high standard of requirement: it did not foresee that away from a base of instruction the standard could be neither constant nor high.

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* For 1876 the subjects were: Political Philosophy—Ideal Polities or States, their nature and use, with special reference to Plato's *Republic*, More's *Utopia*, and Bacon's *New Atlantis;* History of Philosophy—The development of Locke's principles, Berkeley's *Principles of Human Knowledge* and Hume's *Treatise of Human Nature.*

It was certainly from no desire to discourage systematic instruction that the more enlightened members of the Senate stood by the plan of opening the University examinations to all comers in the teeth of strong remonstrance from all the more important affiliated colleges. With affiliation carried out as it had been in the first twenty years, the truth was that no shadow of reason remained for excluding almost any decent secondary school from the list of the institutions whence the University received certificates for degrees in arts and laws; and the only sensible step forward, when there was no question of taking a great many steps backward to the original position of founding in reality as in name a University of London, was of course to admit candidates without reference to their place of instruction. This had become clear, not only to the majority of the Senate, who from one motive or another had gone on relaxing the conditions of affiliation, but also to those members (like Mr. Grote), who had struggled in vain for the maintenance of stricter principles; and the step once fairly contemplated, there was no stopping short of the final position that the University should confine itself to its own work of examining, whether or not candidates had been regularly instructed at all. It all followed as naturally as possible from the University being set up, not as a means of organising the higher instruction in the capital, but to perform directly a certain useful kind of work for the country at large. At the same time the notion of fair and open examination for all with perfect free-trade in teaching had an air of liberalism about it that imposed on many minds, as it still is the idol of Mr. Lowe; and it was only to be expected that some ardent advocate should urge what lustre would be shed on the University that welcomed to its examinations "the heroic stonemason," beholden to no college whatever for instruction. Nevertheless, as I have said, the intention of the best heads was rather to encourage than depress instruction, and as regards the initial (B.A. and B.Sc.) examination in Philosophy it was even expressly intimated that the amount of acquirement expected was such as might fairly be attained by a course of instruction in a class during the year preceding examination. It is interesting then to see what kind of philosophical study the scheme of the University has in practice evoked during the last fifteen years.

The broad result is that a full half of the yearly tale of Bachelors of Arts (to take the most representative class of graduates) acquire their knowledge of philosophy by private reading without instruction, while the proportion of such private students to the whole number of candidates for examination is considerably greater. Of the others who pass as Bachelors, some ten or twelve may have had more or less of formal instruction in Catholic or Dissenting theological colleges, and the rest are students of the only two general academic institutions that remain in any sort of regular connection with the University, namely, University College, which sends up yearly about a dozen men, and Owen's College, Manchester, whose usual quota is less than half as many. (King's College, which still does not include Philosophy in its scheme of instruction, has practically ceased to maintain any relations with the University of which it was to be a chief feeder.) Now the number of students who go up from University College shows no tendency to increase, and the authorities of Owen's College have just made it part of their plea for being turned into an independent university that fewer and fewer of their instructed students care to look to the London examinations. Some serious questions thereupon arise. What is the effect on the philosophical examinations of the unexpected predominance of private-study candidates? And what is the real value of the carefully elaborated scheme for candidates of that class? I am afraid it must be answered that, in such circumstances, an examination tends to become whatever test a fair proportion of candidates for the time being are found able to pass. Nobody is to blame, and yet it is so. The authorities may be sincerely anxious to maintain a good standard, the examiners may set the most carefully considered papers; all the same, when the list of the rejected comes to be determined, it is not in human nature not to take account of the actual performance of the bulk of the candidates and accommodate the standard to the exigencies of the occasion. Then the candidates, in course of time, discover that certain books most nearly correspond with the scope of the examination, and the examiners, however careful they may be to put open questions, cannot refuse a stereotyped form of answer or bear hard on those candidates whose obviously limited reading has left them without the means of answering any but a determinate class of questions. Thus practically the examination comes to turn upon books after all; and the formal divorce of the University from any system of instruction leaves it to be supposed that the reading of one or two philosophical books constitutes an effective mental discipline. But nothing could be more fallacious. I doubt if any one who has read the written answers of the multifarious crowd of candidates for the B.A. degree, the majority of whom have come into contact with no living instructor, can hold it an unmixed good that an examination in Philosophy is imposed upon all under the present constitution of the University. The subject, so nearly concerning every reflective human mind, and most fitly therefore regarded as crowning a liberal education, is yet the one of all others that may least be left to undirected private reading in the case of the mass of students. Certainly there are a few minds here and there, now and again, who with or without formal instruction follow a native bent and can be trusted to work their way to clearness and coherence of thought on the questions of human origin and destiny, but with the multitude of learners it is quite otherwise. A little book-knowledge of philosophical questions, when not a dangerous, is truly a most unprofitable thing. That general students may profit by a course of philosophical instruction there is the experience of the Scottish Universities to show; and the number of distinguished thinkers who have risen in the ranks of Scottish professors represents a real national gain yielded by an organised system of public instruction in Philosophy. It is to be charged against the London University that all its elaborate machinery does nothing to help on the work of instruction, but rather has the contrary effect as regards the higher elements of human culture. At least as respects Philosophy, while it is certain that Grote and others looked forward to a great development of instruction, the advance made in the last fifteen years has been quite insignificant.

University College has its professor of Philosophy of Mind and Logic who lectures year after year to a small voluntary class of young students attending the College, with a few additional hearers from without, but has no constituency to draw upon for higher work in the subjects, because candidates for the special degree of M.A. at the University are a handful altogether in any year and, besides, are scattered through the country or, if in London, are generally engaged already in some active pursuit interfering with continuous study. Owen's College in Manchester has a professor who as yet at least is in no more favourable position as regards auditors, while he is weighted with the additional subject of political economy. Besides these two there is no other public professor of Philosophy in all England outside of Oxford and Cambridge. Such instruction as is given in some Dissenting theological colleges or in Catholic colleges is of course discounted, though it should not be forgotten that one theological seminary in London has long been signalised by the teaching of Mr. Martineau. The statement whether as regards the country or as regards London will sound incredible to foreign ears, and may astonish even English readers when presented in its nakedness. Meanwhile the old Universities, as the readers of this journal have been told on the best authority, do not come near to discharging the national work that is otherwise left undone; however great be the credit due to the band of earnest instructors who are labouring to establish a due balance of education at Cambridge by the revival of Philosophy, or whatever be the evidence of serious thinking at Oxford at a level high above the arena of the examination-schools. One can only hope for a day to come when in London some organised system of highest instruction will supersede the wasteful efforts of rival institutions now ill-equipped or incomplete, and trust that in that day the importance of Philosophy as a mediating influence between letters and science will be fully recognised. How the reform may be brought to pass, there is little as yet to show. Perhaps the University of London, having done a good work in stirring up the country to a sense of the need of broad secondary education, will after all be transformed, for the good of the country's capital, into the likeness of that original seat of high learning which was projected to bear the name; taking up into one coherent academic system the two Colleges that sprang out of the first movement and the special scientific schools that, by a lavish appropriation of public money, have in later years been founded without the least regard to the private sacrifices made half a century ago. Perhaps University College itself, as the original depositary of the academic trust for London, will, after its long struggle with faint success to make the higher education self-supporting, receive from public or private sources the endowment that all human experience has proved to be indispensable for its maintenance, and will expand into a great school of all science and learning that need not look outside to the cramping standard of even the best examining body that is nothing else. In one way or another the reproach that adheres to superior instruction in London and to philosophical instruction with the rest cannot too soon be taken away.*

EDITOR.

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* Within the last few months a Society has actually been formed with the professed object of organising University Education in London, and as, in the view of the foregoing article, the question of philosophical instruction is bound up with the larger problem, a word or two upon the latest attempt to solve it may not be out of place. The Society has arisen out of a movement by one or two meritorious institutions that give instruction in the evening to persons engaged in business by day. These were desirous to obtain the services of young Cambridge lecturers like those who in late years have been breaking ground in northern towns; but, oddly enough, the humble design was given out as the beginning of a scheme for University Education in the Metropolis, as if such a thing had never before been thought of, and London were another Nottingham upon which a reflection of academic light might be induced to fall. Soon, however, the movers and their influential friends, some of whom were less ignorant than forgetful of what had been done in former days, awoke to a sense of the difference between London and a provincial town, and the scheme then took a new shape. The notion was now to invoke the two older Universities with the University of London to take the metropolitan field in charge with the view of supplementing the instruction already given within it, and a very elaborate working-plan was devised. But Oxford and Cambridge have since declined the proffered charge, and the Society is left to make what way it can within London itself.

One desires to speak with all respect of any serious effort directed towards the end proposed, and there has undoubtedly been no small energy displayed in the establishment of this Society. The observation cannot however be forborne that its founders have from the first kept before them no distinct conception of what is meant by University Education. If their main object, as there is still some reason to suppose, is to provide additional evening instruction in different parts of London, the name of University Education is surely misapplied. If on the other hand it be true academic work which they are eager to foster, the simplest way, one would think, is to develop the two Colleges that have struggled to maintain the higher learning for nearly fifty years past. But it would seem as if in London there were never to be an end of new beginnings.

Supplementary Note.—For an important change (of principle) in the B. Sc. regulations, just announced, see *News* at the end of this number.

VIII.—CRITICAL NOTICES.

Ethical Studies. By F. H. Bradley, Fellow of Merton College, Oxford. King & Co., 1876.

I find some difficulty in describing the general aim and character of this collection of Essays: since the account given of it by the author differs materially from the impression produced on my mind by its perusal. Mr. Bradley informs us that his "object in this work has been mainly critical," and that it is "very far from attempting a systematic treatment of ethical questions:" I should have thought, on the contrary, that his chief aim was not merely directly dogmatic, but even vehemently propagandist; and that he had used all the rhetorical resources at his command—more perhaps, than the canons of good taste would permit—to bring his reader to the acceptance of a set of doctrines, chiefly derived from Hegel, which if they are not really coherent were at least believed by himself to be so. At any rate, whatever the author may have intended, I venture to think that uncritical dogmatism constitutes the largest and most interesting element of Mr. Bradley's work. It is true that his polemical writing, especially his attack on ethical and psychological Hedonism in Essays III. and VII., is always vigorous, and frequently acute and suggestive: but often again, just at the *nodes* of his argument, he lapses provokingly into mere debating-club rhetoric; and his apprehension of the views which he assails is always rather superficial and sometimes even unintelligent. This last defect seems partly due to his limited acquaintance with the whole process of English ethical thought, partly to the contemptuous asperity with which he treats opposing doctrines: for really penetrating criticism, especially in ethics, requires a patient effort of intellectual sympathy which Mr. Bradley has never learned to make, and a tranquillity of temper which he seems incapable of maintaining. Nor again, does he appear to have effectively criticised his own fundamental positions, before presenting them to the public. His main ethical principle is that Self-Realisation is the ultimate end of practice: but in Essay II. (p. 59) the reader is startled by the communication that Mr. Bradley "does not properly speaking know what he means when he says 'self' and 'real' and 'realise.'" The frankness of this confession disarms satire: and the reader will probably be rather glad to find that Mr. Bradley, in spite of the Hegelian colour of his teaching, has not yet definitely enrolled himself among the

> überwitzigen Leuten
> Die Gott, und Welt, und was sie selbst bedeuten
> Begriffen längst mit Hegelschem Verstande.

At the same time one cannot but wish that he had reduced the different accounts that he does explicitly give of this central notion of 'self' into somewhat clearer coherence. In Essay I., for example, everything turns on his conception of 'self' and its relations. Here Mr. Bradley, while professing to compare the "vulgar notion of responsibility" with the "theories of Free-Will and Necessity," of course suggests his own view of the causation of voluntary actions, as the true philosophical way of *thinking* what the vulgar *believe*. As against the advocates of Free Will he maintains that "a man of healthy mind has no objection to the prediction of any actions which he looks on as issuing from his character" and does not find such prediction incompatible with his notion of his responsibility for his actions. He considers that what the "plain man" repudiates is not an internal necessity linking himself and his volition, so that if he be known as having this or that character his actions may be foreknown as the result of his character, but such a causal connection of his character with antecedent phenomena as implies a possibility of explaining himself into his elements, *i.e.*, into what is not himself. And as against the Determinist Mr. Bradley urges that such explanation is impossible, since "the character of the man is not what is made, but what makes itself out of and from the disposition and environment." How, as regards the series of volitions by which character thus "makes itself" we are to avoid the dilemma between Determinisn and Indeterminism, I cannot see: but at any rate it is clearly held that each mature individual—when he begins to philosophise and inquire into the ultimate end of action—has, or rather *is*, a certain definite character (*plus* a certain amount of "raw material of disposition" not yet manufactured into character) which under given circumstances will express itself in acts of a certain kind.

Hence when in Essay II. on the question "Why should I be Moral?" our author tells us that "self-realisation is the end in itself," we naturally think of the realisation or development into act of the potentialities constituting the definite formed character of each individual. It is indeed evident that this, as it stands, can hardly serve as the Summum Bonum: but we might expect Mr. Bradley to take this notion and somehow modify it for ethical purposes. Instead of this, however, he starts afresh, and offers us various new meanings of his cardinal term. He tells us first that for "morality" or "the moral consciousness," the end is something to be done by me, *my* act—not something beyond it to which the act is a means—and so is the realisation of myself. He tells us secondly that what we desire is always "self," "for all objects or ends have been felt in and as ourselves or we have felt ourselves therein; and the only reason why they move us now is that we feel ourselves affirmed in them." Without discussing the metaphysical issue here raised, we may at least say that a term which equally denotes the fulfilment of any of my desires by some one else and my own accomplishment of my duty, will hardly avail us much in a definition of the Highest Good. At this point Mr. Bradley tries to help us by the further statement that "the self we try to realise is a whole:" that is, as he explains, we have some main end which embraces other ends, "some general wish which would include and imply all our particular wishes." I hardly think that the lives of ordinary men are actually as much systematised as Mr. Bradley supposes: indeed it seems to be chiefly their absence of system which renders them such easy subjects for cynical treatment. But undoubtedly we all recognise that this systematisation is demanded of us as reasonable beings: indeed it is with a view to this that we set out on our inquiry for an ultimate end of conduct; the question then is whether we gain anything by calling the object of our search "the true whole which is to realise the true self." According to Mr. Bradley's interpretation of his formula, we gain at least an argument against Hedonism. The notion of Maximum Pleasure is certainly sufficient for systematising conduct, as it gives us a universally applicable standard for selecting and regulating our activities. But it does not give us an end which can ever be realised as a whole, in Mr. Bradley's sense, that is, all at once: for obviously there is and can be no moment at which a "greatest possible sum of pleasures" can be enjoyed.

If Hedonism, then, be rejected on this ground and because of its conflict with the common moral consciousness and practical experience of mankind (Essay III.), where are we to seek for such an ultimate end as Mr. Bradley requires, a "universal present throughout its particulars?" Can we find it in Kant's interpretation of the moral consciousness, announcing that "there is nothing good but a good will." If the "common moral consciousness" does assent to this, it is, I think, because it overlooks the dialectical trap into which it is falling: it means by a good will a will that wills the good, and does not see that the negative part of the proposition to which it has assented deprives the affirmative part of its usual content, and leaves as the sole good a will that wills itself. This notion is obviously empty if we only contemplate a single volition: we can only put a meaning into it by thinking of many different volitions, and so understanding it as a self-consistent will: and it only appears to be adapted for a moral principle, when we further introduce a plurality of voluntary agents. We can then give as characteristic of the "good wills" of any number of individuals that they are perfectly harmonious: each wills what all others would will in its place; each, we may say, is merely the expression of one universal will, realising itself in different concrete particulars. It was perhaps the sublimity of the ideal of moral order thus presented that blinded Kant to its incompleteness. Mr. Bradley has no difficulty in showing (in Essay IV.) that we cannot logically pass from the mere notion of a self-consistent universal will to the determination of a particular concrete good act: but when, in order to supply the deficient particularity and concreteness, he accepts a merely relative universality as a sufficient criterion of goodness, his reasoning seems dangerously loose and rash. He tell us in Essay V. that this "concrete universal" is given in the society to which each individual belongs. "We have found self-realisation, duty, happiness in one, when we have found our function as an organ in the social organism." The reader may perhaps understand by this no more than the old doctrine—to which modern sociology has given a new form and a new emphasis—that the individual man is essentially a social being, a member of a larger whole or system, and that his life and work must be accounted good in so far as it tends to the good of the whole. Mr. Bradley, I think, has not clearly distinguished this view from his own: and the effectiveness of his argument against Individualism depends chiefly on the non-distinction. But it is obvious that this doctrine does not get us beyond the point at which Kantism was found wanting. What is this "good of the whole" which is to determine "good for me?" If the latter notion gives us a problem to be solved, how can the former be already known? It is Mr. Bradley's answer to this question which constitutes the difference between his view and that of modern sociology. He attributes to the social organism not merely a common life which the individual shares, but a rational will, expressed in the laws, customs and common moral judgments of his society, the realisation of which is the realisation of his true self. Good life for me is life lived according to the moral spirit of my community: which is to be learnt not from the theories of "thinkers," but from the intuitive judgment on concrete cases of honest unreflective persons. This judgment, no doubt, varies from age to age and from community to community, and so far morality is "relative:" but for me in my own age and country it is absolutely good to do what unsophisticated common sense regards as my duty. "To wish to be better than the world is to be on the threshold of immorality."

I have given this view as Mr. Bradley's, because—however unsatisfactory it may seem to those who have been stimulated to ethical inquiry by the palpable inadequacy of the very common sense which is here offered as the solution of their difficulties—he certainly expounds it in Essay V. with an air of earnest conviction and an unusual outburst of triumphant rhetoric. I should add, however, that he immediately proceeds to point out some of the many obvious objections that might be made against it, and qualifies it to an important extent in the Essays that follow. In Essay VI. on "Ideal Morality," he recognises not only an ideal of social behaviour beyond what common sense imposes as a duty, but also ultimate ends, such as Beauty and Truth, the pursuit of which is morally incumbent on certain persons, though it cannot be fairly included in the "will of the social organism." Nor does he merely regard this pursuit as superadded to the performance of common social duty: he allows that "some neglect of common morality" is, to the aspirant after the ideal, "unavoidable:" and even that "open and direct outrage on the standing moral institutions which make society and human life what it is" may be "justified on the plea of overpowering moral necessity." But here he plainly comes into conflict with "unsophisticated common sense:" and surely if that authority be thus found *falsus in uno*, it must be at least *fallibilis in omnibus:* and thus we have still to seek for some criterion of the validity of its dictates. Indeed Mr. Bradley himself elsewhere acknowledges the legitimacy of "cosmopolitan morality" which has a "notion of goodness not of any particular time and country:"

and again in Essay VIII., which deals with the transition from Morality to Religion, he appears to recognise a universal will, higher than the will of any particular social organism. In this way, no doubt, the doctrine expounded in Essay V. loses its paradoxical character; but it is also stripped of its apparent definiteness and completeness, and reduced to little more than a vague and barren ethical commonplace, dressed in a new metaphysical formula.

I have been obliged to confine my notice to the main ethical argument of Mr. Bradley's *Studies*, neglecting a good deal of metaphysical discussion which he has connected with it. Much of the latter, I must confess, seems to me either irrelevant or inadequate: and the author, though he has a considerable turn for smart and epigrammatic writing, hardly possesses the gift of lucid exposition. Yet on the whole his book, though crude and immature, is certainly interesting and suggestive: perhaps all the more from its marked antagonism to current philosophical opinion. HENRY SIDGWICK.

Philosophie de la Réligion de Hégel, traduite pour la première fois et accompagnée de plusieurs introductions et d'un commentaire perpetuel par A. VÉRA, Tome I. Paris: Baillière. 1876.

Religious questions have lately attracted much public attention both in general literature and in practical politics; but the controversialists seldom seem sufficiently in earnest with their opinions to think them out, and it is refreshing to meet with such a thorough attempt to get to the root of the matter as is found in this work of which the first volume has come to hand. Those who are already acquainted with Hegel's book, may yet find much that is interesting in the introductions by the translator, who, writing as a disciple, expends little criticism on the doctrine of his master, but indulges in a vigorous polemic against those who have opposed it.

As the whole question is made to turn on the fundamental point whether Religion is necessary, a few words might have been devoted to a closer definition of this greatly misused term. It is not of course a mere political necessity, which finds religion a useful means for enforcing government discipline; nor a psychological necessity, which arises from the emotional sides of human nature (pp. lii. ff.); nor a subjective necessity which is due to my education &c.; but one that holds good for all thinking beings. If Religion is not necessary in this sense, it must come sooner or later to be discarded altogether; and signs of commotion in the ecclesiastical world may be marks of the near approach of the epoch in human progress when it shall set itself free from these ideas for ever (p. xviii.). There are two points of view from which it is impossible to attribute this character of necessity to Religion.

One of these is reached if we adopt the philosophical doctrines which lie at the basis of ordinary scientific opinion and which, as Vera shows, have had their clearest exposition in that delineation of the Universe as a chaos of possible worlds, which Strauss calls a Cosmic Conception. (*Der alte und der neue Glaube*, p. 45.) In so far as Darwinianism is satisfied with invoking "immense periods and minute variations," it lends itself to this habit of thought; but in so far as it involves the assumption of a primitive type or types, or of determinate relations, it is inconsistent with this philosophy (as Strauss himself sees) and is consequently, we may remark, untouched by the criticism which is here directed against the Cosmic Conception. In connection with the recent discussion in MIND on the Ethics of Evolution it might be interesting to ask whether the morality of Strauss is reconcilable with his philosophy? But, even without noticing this point, Vera urges with considerable force that the doctrines are untenable; briefly summarised, his criticism is that chaos is unthinkable and can never afford an explanation of the Universe which shall be self-consistent (p. xlii.).

There is a very different point of view from which it is again impossible to establish the necessity of Religion; if we find the principle of the Universe in a capricious Will—as the Cartesians did in placing the divine wish above right, and as modern orthodoxy is sometimes inclined to do. Under the mask of exalting the Deity, it admits Unreason to be paramount, and thus there can be no demonstration of the necessity of religion, or of anything else (p. xlix.).

These two representations of the Universe are pronounced to be unsatisfactory, and are contrasted with the systematic evolution that has been worked out by Hegel, in which Religion has its demonstrated place. It is here that the Introductions appear least satisfactory, as they fail to give a preliminary view which might be an assistance to those reading the *Philosophy of Religion* for the first time. The demonstration of the strength of the author's position against attacks from the left (Frauenstädt, Daumer) is forcible, but it would have been an advantage if there had been farther illustration of the nature of the position itself. This the reader must seek in the main body of the work, as there is little attempt to smooth the difficulty of passing from the popular to the speculative conception of Religion, though the change of view is complete. In religious experience the human spirit claims consciousness of the immediate presence of God (faith); now, it is clear that this may be viewed from the other side, not as the individual recognising God as his, but as God recognising the individual as His, and Religion may be described as the Absolute Spirit's becoming conscious of Himself in human beings. Eckhart and other mediæval mystics have a great deal of affinity with this view (Hegel, *Werke*, XI., p. 212, *Trans.*, p. 354). Religion need no longer be regarded as a relation between a finite being and the infinite one to whom he is set in opposition (involving all the difficulties to which this spurious contrariety gives use in the Understanding), but as a necessary phase in the self-development of Spirit. Religion is the representation of Absolute Truth, Philosophy the statement of the thought which the representation contains, and the connection between them is similar to that which subsists between any two moments in the system (p. cxlvi.).

The nature of this connection is very clearly brought out by Vera after a long discussion of misunderstandings of the Hegelian position, and of other doctrines of the relation of Philosophy and Religion. With two claims to the possession of absolute truth there must either be a demonstrated connection between them, or one must be exalted at the expense of the other. Some devout minds may despise human knowledge,—while others will hold to philosophy as giving all truth, and pick up some rags of sentiment from which to extract a religion for themselves; in their glaring antagonism neither party will welcome a demonstration of the necessary connection of the two, though this must yet be uttered for its own sake, if not for unwilling ears (p. clvi.).

Either of these extreme views would give rise to a denial of the possibility of relationship between Philosophy and Religion, such as is implied in Hamilton's accepting as Belief what is inconceivable as Knowledge, or in the current conception of religious feeling as merely an interesting psychological phenomenon—not to say curiosity.

If, on the other hand, we recognise truth in these feelings, we are bound to offer some explanation of their relation to other truth. This is the position of Feuerbach who holds that Religion occupies a sphere of sentiment, but that there are ideal elements which underlie it; that Philosophy may have to do with these, but not with the sentimental form in which they are clothed, while this sentimental side is essential to Religion; in fact, that Religion has to do with *relation*, Philosophy with *substantiality* (p. lxxxii.). It may be remarked that this doctrine is evidently based on the popular conception of religion (as the relation of finite and infinite spirits), not on the speculative one which regards it as a phase in the self-development of Absolute Spirit. On the other hand, as Vera shows, if Feuerbach's conception of religion be the true one, we have just returned to the former denial of any relation between religion and philosophy.

The criticism of these opinions on this point of relationship are most incisive; and there is an equally vigorous attack on the statement on which is based the popular doctrine of individual liberty in religion, because forsooth it concerns the relation of the individual and his Maker (p. cxxi.). This has its truth if we mean that the immediate consciousness of God must take place in a consciousness and therefore in an individual, and do not imagine that it differs for different individuals; which would be an implicit denial of the existence of truth in religion altogether. If religion is a phase of Absolute Spirit, it is simply impossible that all religious forms are of equal worth for us, though all may have had their importance as moments in the development of higher truth. It is thus that Hegel finds room for an examination of different religious beliefs along with his exposition of the speculative side of the subject.

Vera's translation follows the text very closely and, where technicalities of the original are especially difficult to render literally, additional phrases are given in the notes. The frequent but compressed explanations which consist for the most part of illustrations and hints of connection with other parts of the system are admirable; these remedy to a great extent the defect which has been noticed as occurring in the Introductions.

W. CUNNINGHAM.

IX.—REPORTS.

I.—PATHOLOGICAL.

Double Memory (*Consciousness*).—The *Revue Scientifique* (15th July, 1876) contains an account of another interesting case of Double Consciousness, similar in some respects to the case of Félida X. reported in MIND III. (p. 414). This second statement is by Dr. Dufay (now deputy of Loir-et-Cher), who for about a dozen years from 1845 had almost daily opportunities of studying his patient, Mdlle. R. L. A somnambulist of the common type from her early years, she came under his observation about the age of twenty-eight, being then in business as a milliner. From that time she continued subject, most commonly in the evening, to a particular kind of attack attended with the abnormal consciousness. She would be sitting with her girls at work round a lamp, perhaps chatting gaily, when suddenly her forehead would descend and strike the table with a violent rap—the beginning of the attack. The blow would give her no pain and in a few seconds she would sit up and resume her work, first snatching off the spectacles she commonly wore for short-sight and holding her work as far as possible away from the light. To thread her needle she would dart her hands into the shade under the table and pass the thread in a second, whereas in her normal state she had great difficulty in threading even with the help of spectacles and bright light. If she wanted a ribbon or a flower she would go straight to the drawer in the shop where it was kept, find it if it were mislaid, choose it of the proper colour—all in the dark—and return to her work without failure or mishap. But the most singular change was in her speech. So long as the attack lasted she would, like a child, say *Me* for *I*, joining with it the third person of the verb; thus, she would speak of her normal state as "When me is stupid." Her intelligence, though always of a superior order, would in fact be markedly developed during the attack, her memory in particular then extending to the minutest events she had ever experienced whether in her normal state or in previous attacks. In this last respect she resembled Félida X., and, like her, as soon as the attacks passed off, she would lose all remembrance of what had passed in the abnormal periods. She would then also learn with amazement from Dr. Dufay forgotten facts of her common life which she had freely told him in (what he calls) the somnambulist state but could now recall only with an effort. The doubleness of memory in the abnormal state went so far as to give her the notion of her being two distinct persons. She would speak with the utmost freedom of things which she begged might not be mentioned "to the other," because "me knows that she would not like to tell you that: it would make her very unhappy." Out of the state, in common life, she showed all the reserve inspired by personal interest, timidity or regard for decorum. The evening-attacks generally passed off overnight when she had gone to sleep in bed, but they might last out the natural time of sleep into the next day, and attacks that came on (through strong emotion) by day were apt to be prolonged. When artificially roused out of them (by stimulus applied to a particular part of the neck or throat, the skin being elsewhere insensitive—though it is said that touch, meaning probably of the hand, remained intact), she would yawn three times and then with a sense of pain and mental distress resume her normal state.

Dr. Dufay (more expressly than Dr. Azam in the case of Félida X.) urges that it is not the want of memory in the normal state that is here remarkable, but the doubleness of memory in the abnormal state with the notion of two distinct personalities. It is quite natural, he remarks, to forget a dream on waking, and instead of seeking (with Dr. Azam) to explain the amnesia by supposing a morbid contraction of the blood-vessels of the brain, the memory of dreams (when they are remembered) is rather, he suggests, to be ascribed to congestion of particular parts. The whole exaggerated memory of the abnormal state, it can hardly be doubted, results from an over-excited brain-circulation, and the unnatural sensitiveness to light in R. L. points the same way. To explain the subjective fancy of double personality is another matter; but it cannot be attempted except upon a basis of well-ascertained facts, and hence the importance, for psychology, of recording such cases as those of R. L. and Félida X.* EDITOR.

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* While this page is passing through the press, Dr. Azam, in the last number (Sept. 16th) of the *Revue Scientifique*, has returned to the case of Félida X. Incidentally he notices with much courtesy the remark made in MIND III. (p. 415) that Félida's "normal" (as well as her secondary) state is a morbid one, allowing that it is so, as indeed he had in various ways originally implied. The interest of his present communication lies in its very effective (though brief) treatment of Somnambulism in relation to Common Sleep. The various forms, simple or complex, of Somnambulism are passed under review, and he makes out that it is characteristic of them all that the actions performed or events experienced while the state lasts, leave no trace whatever in the subject's ordinary memory. He calls Félida a somnambulist, but one in whom the somnambulism is *total*, because all her faculties and senses, particularly the ruling sense of vision, act in a regular and balanced way; whereas usually somnambulists have only some of their senses active, the action being at the same time more or less abnormally intense. In spite of the relative perfection of Félida's mental activity in her secondary (now the predominant) state, it is all a blank to her in the "normal" state, just because it is mere somnambulism and nothing more. Dr. Azam gives some new information about Félida, as to her life in the past year. From what he

False Memory.—In the *Archiv fur Psychiatrie* (Bd. vi. Heft. 2, 1876) Dr. Arnold Pick has recorded an interesting case of mental disorder in which a sense of double life was a very prominent feature. It was an exaggerated form of the common consciousness of previous action identical with that being performed, which was described in 1844 by Wigan as Duality of Mind, and more lately by Jansen, &c., as Double-Consciousness, and by Sander as False Memory (*Erinnerungtäuschungen*). It is rarely that the phenomenon is associated with symptoms of actual mental disease. The patient was young, *æt.* 30, of some education and a mathematical turn, who had suffered for many years from the peculiar feeling, and for two or three years from delusions of persecution, poisoning and the like. These were in part under the influence of the double-consciousness. Of the latter the patient gave a written description. The first distinct attacks occurred when he was aged twenty-three. On any excitement, visits to places of amusement, chance encounters, &c., the event and all its surrounding circumstances seemed so familiar to him that he felt confident that he had been in the same place, doing the same thing and surrounded by precisely the same persons and condition of objects, weather, &c. This consciousness sometimes occurred in the same day, in a few minutes or hours; sometimes not till the following day, when it was always clearer. Afterwards every fresh task that he did in his occupation seemed to have been done before under the same circumstances. It was difficult to determine the share this false impression had in causing the mental disturbance and delusion. The case corroborates the opinion of Sander that imagination has a large share in the production of these delusions, on account of the time which often elapsed after an event before it was reproduced in the form of supposed anterior experience. The patient himself believed that this was the case and thought that during a dreamy state the memory of anterior experience was prepared. If this was so in the instances in which some time, minutes or hours, elapsed before the sense of a previous identical conviction came on, Pick believes the same explanation applied to the instances in which this was almost immediate, since then too the conception became always clearer after a time. The patient's belief in the reality of his double life Pick associates with his distinctly insane state.

W. R. Gowers.

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tells, it seems doubtful whether his previous forecast that the old "normal" state may in time wholly give place to the secondary one, will come true. The "normal" state within the year has recurred much more frequently (though for very short periods) than it had been doing of late, and the general disturbance of health appears to be increasing. Her distress, in the "normal" state, at the blanks of memory has certainly increased, and in despair she has on one occasion recently tried to commit suicide. Dr. Azam will continue to chronicle the progress of the case.

II.—PHILOSOPHICAL JOURNALS.

Zeitschrift für Philosophie u. philosophische Kritik. Bd. lxviii. Hft. 2. Halle, 1876.

In this number we have the third of Dr. Steffens's articles on "The knowledge to be derived from the writings of Aristotle regarding the history of Greek philosophy from Thales to Plato." It has been objected to these papers that they convey to us scarcely any new information. It would be wonderful if they did,—if any important statement of Aristotle about his predecessors had been overlooked. Their interest rather lies in showing how little we know of ancient Greek philosophy beyond what Aristotle has told us; how few new facts or thoughts he, were he to revisit the world, would find in what even a Grote or Zeller has written on the Eleatics and early Pythagoreans. The paper of Dr. Rehnisch on "The Researches and Results of Moral Statistics" is entirely preliminary, and, indeed, mainly an account of the life and work of Quetelet. Those which are to follow may be expected to be valuable, as Dr. Rehnisch is known to have devoted much attention to the controversy as to the relation of the results of Moral Statistics to the freedom of the Will. It is the subject of one of his courses of lectures at Göttingen. Dr. Siebeck in a learned review of Teichmüller's *Studien zur Geschichte der Begriffe* (1874) disputes certain positions maintained by that author with respect to the philosophy of Plato and the connection between Platonism and Aristotelianism. He argues, in particular, that the Platonic is not a thoroughly Pantheistic system, and that Plato taught a personal immortality. Dr. Ulrici reviews Jung's *Panacee und Theodicee*, D'Ercole's *La Pena di Morte*, M'Cosh's *Laws of Discursive Thought*, and Volkmann's *Lehrbuch der Psychologie.* Of these works the two latter only are of much scientific value. Ulrici and M'Cosh are essentially accordant in their views on logic; Ulrici and Volkmann, who is the most learned and laborious psychologist of the Herbartist school, are decidedly at variance on the chief questions of psychology.

Zeitschrift für Völkerpsychologie und Sprachwissenschaft. Bd. ix. Hfte. 1, 2. Berlin, 1876.

This double number will be read with great but painful interest by those who cherish theistic beliefs. Prof. Steinthal contributes a second article on the "Philosophy of Religion." As he understands it, such philosophy includes denial of "the three Ideas"—God, Immortality, and Freedom, and the affirmation that man is the beginning and end of all knowledge, the origin and goal of all truth, beauty, and goodness. *Homo homini deus est.* He states at considerable length and very clearly his views as to what nature and spirit are, how they are related, and how physical and mental science ought to be founded on them. He conceives of the connection of nature and spirit, the phenomenally distinguishable but really inseparable moments of the absolute self-manifesting existence, much as Professor Ferrier did, who, however, held that such a mode of conception necessarily required, to save the universe from presenting a contradiction to all reason, the postulating of a supreme, infinite, and everlasting Mind in synthesis with all things. Many will deny the self-consistency of Dr. Steinthal's views so long as they are not thus supplemented. A considerable portion of his article is devoted to the refutation of the opinions relative to psychology propounded by Lange in his *History of Materialism.* This part of it is quite successful. Dr. Paulsen follows with an article, no less negative, on "John Stuart Mill's Philosophy of Religion." He tells us that since the publication of Kant's *Critique of Pure Reason* the worthlessness of natural theology has been universally acknowledged in Germany, but that, notwithstanding Hume, this truth is not yet generally accepted in England, where Mill's Three Essays on Religion are, accordingly, even at this late date highly seasonable and useful. He reproduces his arguments, compares them with those of Hume and Kant, agrees with them except when they fall short of pure negation, and meets objections to them which Mill overlooked. Like Dr. Steinthal and Mill he maintains that devotion to humanity may be rightly held to be a religion. The article is undoubtedly one of the ablest which Mill's Three Essays have called forth.

Dr. Unna comes next with an article on "Kuno Fischer and the Conscience." The first part of it is a sharp assault on K. Fischer's view that although man has no freedom as respects his actions he is free to alter and even radically change his character. The last part of it is an attempt to explain conscience, and lay a foundation for ethics by means of the doctrine of descent. Dr. Unna is a thoroughgoing determinist. He denies that freedom is in the least implied in conscience, but only arrives at this result by persuading himself that the feeling of responsibility is no constituent element of conscience. The Church, he supposes, borrowed the notion of responsibility from the State, illegitimately associated it with conscience, and transmitted the artificial and incongruous result to philosophy. There are also three instructive notices of philosophical works,—that of Fortlage's *Beiträge zur Psychologie aus Speculation und Erfahrung* by Dr. Bruchmann, of Paulsen's *Versuch, &c.* by Dr. Michaëlis, and of Marty's *Ursprung der Sprache* by Prof. Tobler. All accounts represent Prof. Marty's book as a very important one.

Philosophische Monatshefte. Bd. xii. Hfte. 4, 5. Leipzig, 1876.

The first of these numbers opens with a long and abstruse article by Prof. Böhm, "Contributions to the theory of Consciousness." It is vain to attempt to give a proper summary of it. It can only be understood by those who have made themselves acquainted with the views of Herbart, Beneke, Lotze, Fechner and von Hartmann, as to the nature of consciousness. It subjects these views to a keen criticism in order to show that they adequately explain neither consciousness nor self-consciousness, although they come nearer to a solution than the conclusions of earlier psychologists. Unlike

Herbart who regarded representation, and Schopenhauer who regarded volition, as the fundamental and primary action of the soul, Prof. Böhm gives the preference to feeling, and would mechanically deduce from it the other two functions. He supposes them all to be originally unconscious phenomena, and finds the origin of consciousness in the "fixing" of representations, under special physiological conditions, in the ganglionic cells which contain them. There is, he thinks, no essential difference—no difference as to content—between conscious and unconscious representations. He holds that each ganglionic cell has its own consciousness, and that the seat of consciousness may be transferred in abnormal cases from one to another; that consciousness resides exclusively in no organ of the brain, but that intelligence has its seat in the cerebral hemispheres; that either of these hemispheres can do the work of the other; that the cerebellum is the centre of movements, and not, as Jessen has argued, the seat of conscience; and that self-consciousness is no essential characteristic of mind, but an accidental phenomenon which makes its appearance in the course of the life of particular individuals. The relation of consciousness to self-consciousness, as understood by him, is expressed in these four "laws": (1) The greater the number of representations, the more comprehensive the consciousness. (2) The oftener a representation recurs, the more numerous are the elements of self-consciousness. (3) The more varied the series of representations, the less the self-consciousness. (4) The more the consciousness, the less the self-consciousness. It does not seem to the writer of this notice that Prof. Böhm, with all his undeniable ingenuity, has made out almost any of his distinctive positions. In the same number we have a second portion of an elaborate summary of Prof. v. Stein's *Seven Books on the History of Platonism.*

In No. 5, Superintendent Opitz treats of "Spinoza as Monist, Determinist, and Realist." He would have done well to define or explain the meaning of these three words. To describe Spinoza as a Realist, for example, apparently for no other reason than that he did not believe in miracles, and held a political theory akin to that of Hobbes, is a use of language which certainly needs some justification. It is much to be regretted that so vague a word as Monist should have acquired among German philosophical writers the favour which it at present enjoys. Anybody, not a Manichean, may claim to be a Monist, and anybody may establish a right to refuse to be so designated, at least until the meaning of the term is more precisely determined than it has yet been. Opitz seems also to take insufficient note of Spinoza's peculiar phraseology, and, on the whole, scarcely gets below the surface of his subject. Herr Spir defends himself against Herr Knauer. He appends to his defence a table of the leading consequences which he deduces from his *à priori* principle—that "every object is in its essence identical with itself," viewed in connection with the universal principle of experience—that "experience contains no object which is completely identical with itself." These consequences are logical, psychological, ontological, physical, moral and religious. They are, indeed, surprisingly numerous. Under the heading of "A Contribution to the Theory of the Beautiful in Plotinus," Dr. H. F. Müller translates and elucidates *Ennead* v. 8.

Athenaeum, Zweiter Jahrgang. Hfte. 1-6. Jena, 1876.

We regret to be unable to do more than indicate what articles in these numbers are likely to be of interest to the readers of MIND. The first place in this respect may safely be given to the four papers of von Hartmann on "Moral Freedom" (Hfte. 1, 2, 4, 6). They are intended to form a section of a work entitled *Phenomenology of the Moral Consciousness.* Freedom is regarded as in itself a purely negative notion which has its meaning entirely determined by the mind's relation to some definite restraint or compulsion. Starting with this thought, Dr. von Hartmann discourses in an interesting, popular way on a great number of impediments to voluntary agency. This series of papers is not completed in the numbers under notice. E. Baltzer contributes two articles under the heading of "Empedocles: a Study" (Hfte. 2, 4), but the first is entirely occupied with the history of Agrigentum and the second with the times in which the sage Sicilian lived. In No. 5, Dr. Otto Zacharias discourses on Darwinism and endeavours to refute some of the objections which have been most generally made against it, while Herr Bremer, although professing himself a decided Darwinist, argues that our knowledge of heredity is still extremely imperfect. The editor, Dr. Reich, in two articles on "Some Relations of Organisation to Morals," communicates a considerable amount of information derived from very various sources. He gives the reader not so much his own views on the connection between the physical and moral in man as the conclusions which Bouchardat, Bruce, Byasson, Cowell, Elam, Fodéré, Hughlings Jackson, Maudsley, Meynert, Ribot, Speck, &c. have reached on the subject. Among the large number of books which he notices in the various numbers it so happens that there is scarcely one which can properly be said to belong to the department of psychology or general philosophy.

La Filosfia delle Scuole Italiane. Anno vii. Vol. xiii. Disp. 3. Roma, 1876.

Count Mamiani continues in this number his treatise on Evolution. Having already dealt with Mr. Spencer's theory of cosmological evolution on the, even historically, quite erroneous supposition that it was mainly an expansion of the theory of biological evolution proposed by Mr. Darwin, he now undertakes the examination of Darwinism. He confines himself to its general principles and reasonings, and finds them unsatisfactory. In the concluding portion of his article he takes a single human institution, the family, and endeavours to show that the motives which originate and sustain it—modesty, the passion of beauty, sympathy, &c.—indicate a fundamental difference between man and brute. He acknowledges that he has made no special study of biological science, and this might have been inferred from the essay itself. Some of the most interesting chapters in v. Hartmann's *Philosophy of the Unconscious* are expounded and examined by Signor Bonatelli in the present number, *viz.*, those on Matter as Will and Representation, The Notion of Individuality, The Unitotality of the Unconscious, The Unconscious and the God of Theism, The nature of Generation viewed from the standpoint of the Unconscious, The Progressive Development of Organic Life on the Earth, The Omniscience of the Unconscious and Optimism, The Irrationality of the Will and the Misery of Existence. A clear and accurate analysis of these chapters is in every instance followed by a few critical observations, which are, almost always, sufficient to prove v. Hartmann's speculutions simply ingenious misinterpretations of fact or perversities of logic. The refutation of the dreary view of human life and history presented in the last-mentioned chapter is particularly forcible. Mamiani again brings before us "The Mystical Doctrine of Dr. Heverley of Charleston," and reviews Basevi's *La Divinazione e la Scienza.* There are also reviews of Renouvier's *Uchronie* by Fontana and of Fontana's *Idea per une Filosofia della Storia* by Celli, and short notices of Renan's *Dialogues*, Poéy's *Positivisme*, Falco's *Metodo Sperimentale* and the philosophical journals.

R. FLINT.

Revue Philosophique de la France et de l'Etranger. Dirigée par TH. RIBOT. Numeros VII.—IX. Paris. 1876.

In the July number, E. von Hartmann brings to a conclusion his examination of Frauenstädt's *Neue Briefe*, comparing the latter's relation to Schopenhauer with his own in respect to the ideas of Will and its negation, and the questions of materialism and morals. The upshot of the inquiry seems to be that Frauenstädt, though disengaging himself from some of the inconsequences of his master, is still trammelled by others, from which the method of *The Philosophy of the Unconscious* would have freed him. The paper is ingenious and curious but will hardly prove as interesting to English readers as the editor's excellent *précis* of Herbart's psychology in the same number. M. Ribot, as may be expected from his appreciative studies of recent German psychology, has considerable sympathy with Herbart's attempt to quantify mental phenomena and reduce them to mechanical formulæ. Yet he points out the unscientific element in Herbart's method, namely, the readiness to fall back on unverified hypotheses. "We understand," he well writes, "better than fifty years ago, that the transition from psychology to mechanics cannot be effected immediately." The remaining papers are an account of Max Schasler's *Geschichte der Aesthetik* by Ch. Bénard and a discussion of the place of hypothesis in science by E. Naville. This last subject is continued in the August number, where the conclusion is reached that hypothesis not only has its rightful place by the side of observation and verification, but necessarily mingles with these very processes themselves. The same number (August) contains a second contribution to a study of Indian philosophy by P. Regnaud, and a full account of Ferrier's *Institutes of Metaphysic* by A. Penjon. The writer attempts a brief estimate of Ferrier's system, but offers rather a vague personal impression than a reasoned critical judgment. The September number, in addition to a short but valuable *résumé* of the latest results of researches on cerebral localisation by Dr. Lépine, offers us two articles deserving of notice. The one entitled, "The Algorithm of Logic," from the pen of M. Delbœuf, is the first part of an attempt at expounding deductive logic by means of a conventional system of signs. The drift of the essay will appear more plainly at its close, and we may best defer our account of it till that point is reached. The other paper is an examination of Mr. G. H. Lewes's *Foundations of a Creed* by L. Carrau. The writer confines himself to Mr. Lewes's discussion of the relation of positivism to metaphysic, of the problems of psychology, and of the connection of subject and object. The tone of the criticism is decidedly hostile, the writer insisting that mind cannot be regarded simply in its phenomenal aspect as the other side of certain organic processes. More particularly he demands how we are to conceive certain threads in the tissue of universal existence detaching themselves in order to form the object-subject. JAMES SULLY.

X.—NOTES.

Locke's alleged Anticipation of Mill's theory of Syllogism.—No contributor to No. III. of MIND has called in question Mr. Mahaffy's contention in No. II. (p. 287) that Locke anticipated Mill's theory of syllogism. Accordingly I venture to offer a few observations.

Mr. Mahaffy's language is very strong. It is no affair of a "stray suggestion:" he thinks Locke's reader "will find Mill's whole theory clearly and explicitly laid down;" after which he naturally concludes that "all the essentials of Mill's theory and the steps into which he divides our inferences seem clearly anticipated," although "there are of course some developments in Mill's arguments which are not in Locke."

Now I do not write to say that this is going too far. I maintain it to be erroneous. It seems to me that, so far from clearly and explicitly laying down Mill's whole theory, Locke does not even obscurely and implicitly indicate the essentials of it. At the same time I admit a strong affinity of "attitude," and a community of views on certain points, which however important do not identify the theory.

Before handling the matter more formally it is worth while to point to a fact which raises a strong presumption against Mr. Mahaffy. If you have got by the tail I do not say Mill's theory but even his question, his διαπόρημα, it is scarcely possible to say much about the matter without lighting upon the remark that the syllogism appears to involve a *petitio principii* in its major premiss; but Locke does not make this remark or come anywhere near it.

The passages in question from Locke are these: *Essay on H. U.*, bk. IV. ch. vii. § 11 (or rather §§ 1-11) and ch. xvii. §§ 4-8. In the former and at the end of the latter we recognise the English disposition to defend "particulars" against the usurpation of "generals;" but not every such piece of championship implies the thesis that inference is from particulars to particulars. This thesis, we shall find it necessary to bear in mind, is somewhat elliptically expressed, and really means that inference is from particulars *having a common mark* to *other* particulars *having the same mark.* About such inference neither place contains a word.

The latter place (ch. xvii. §§ 4-8) is the easier dealt with. In quoting its "leading passage" (from § 8) Mr. Mahaffy does not begin soon enough to make it clear what Locke is at. Without quoting much more I may say that Locke is seeking to refute the rule requiring every valid syllogism to have one general premiss, and that all turns upon the following words—"every man's reasoning and knowledge is only about the ideas existing in his own mind, which are truly every one of them particular existences." Here Locke assumes his doctrine that when, for instance (§ 4), you infer an agent's freedom from the justice of his punishment through the middle term his guilt, the process consists essentially in recognising the connection between the "ideas" of just punishment and of guilt, and between the "ideas" of guilt and of power to do otherwise; and that nothing can be more artificial or perverse than to say—"All guilty persons could have done otherwise, all persons justly punished are guilty, therefore all persons justly punished could have done otherwise." You may call Locke's syllogism an inference from particular to particular if you like; but the particulars will be these two particular existences, your idea of just punishment and your idea of power to do otherwise. The inference as analysed has nothing to do with particulars having a common mark and others having the same mark. When therefore the heading of the paragraph says "we reason about partilars," the resemblance to Mill's doctrine is verbal and superficial.

It should be observed that the paragraph is incidentally brought in. The rest of what Locke says about syllogism deals chiefly with this superseding of a "jumble" of propositions in extension by a chain of "ideas" ranged "in a simple and plain order." The "country gentlewoman" is a case in point. According to Mr. Mahaffy she corresponds to Mill's "village matron;" the two illustrations, he thinks, are analogous. Homologous they may be; but they certainly discharge different functions: the country gentlewoman perceives the connection between her particular idea of going out convalescent in stormy weather and her particular idea of catching fresh cold; the village matron infers from the particular case of her Lucy to the particular case of a neighbour's child.

I do not wish to imply a low estimate of the importance (expression apart) of Locke's analysis or of its affinity to what

Mill lays down in the chapter preceding that from which Mr. Mahaffy's exposition of Mill is taken.* But all this concerns only what Mill afterwards calls the interpretation of our memorandum; it does not concern the question when and what is the inferring force of a piece of reasoning—the question answered in the words "from particulars to particulars."

The earlier passage of Locke is in the chapter on "Maxims" and treats not of particulars and generals of all sorts but of the cases in which, as Locke contends, the particular proposition is self-evident. He denies of course that the particular is inferred from the general; on the contrary, as in Mr. Mahaffy's second extract, he says the particulars are a sort of introduction to the general. But the chapter is not a contribution to the theory of inference at all: there is no inferring from one set of particulars to another; Locke's child (compare bk. I., ch. ii., §§ 5 ff.) does not infer that it must be with bananas as he has found it with apples and other English fruits—that the whole is greater than the part. Mill on the other hand does contend for such inferences, in the case of clearly synthetical propositions. And it is this difference, I take it, that explains what is at first sight the most telling fact in Mr. Mahaffy's favour. For, with respect to a criticism of Euclid's axioms substantially the same as Locke's criticism of the "maxims," Mill says himself that "consistently followed out it goes to the root of the philosophy of ratiocination" (bk. II., ch. iii., § 3, end). And as he takes this from Dugald Stewart and not from Locke, it does appear that he overlooked anticipations on Locke's part. But, as I have just implied, the *consistent following out* would probably involve combination with the doctrine that many propositions are obtained by induction which Locke held to be self-evident:—unless indeed "ratiocination" is to be taken so strictly that the whole paragraph is a digression from the inquiry into the nature of inference. So it may be; for two thirds of it, the polemic about the definitions, is a digression in any case.

The only places in which Locke, as it seems to me, in any sense conforms his views to Mill's theory are where we should expect to find them, namely, under the head of Probability (bk. IV., ch. xv., §§ 1, 4, ch. xvi., §§ 6-9). But here we have no precise theory, nothing beyond the gnomic wisdom of common sense. (Comp. *Conduct of the U.*, § 13.) Still the exceptions go to show why Locke could not well have anticipated Mill. Locke distinguished absolutely between certainty and probability; certainty being (as I understand him) only of analytical propositions. With Mill this dualism has vanished. Holding to it, Locke could hardly anticipate Mill's doctrine respecting *all* inference. Why Mill, as soon as he had satisfied himself that all inference was from particulars, did not at once explicitly maintain that all inference was probable inference, —this is a thing I should like to understand. C. J. MONRO.

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* That is in bk. II. ch. ii., *Of Ratiocination or Syllogism.* Mr. Mahaffy's exposition is of course from ch. iii., *Of the Functions and Logical Value of the Syllogism.*

Professor Calderwood on Intuitionism in Morals.—In MIND II. Prof. Calderwood published a criticism on the first chapter of Book III. of my *Methods of Ethics.* This criticism involved important misapprehensions of my meaning and drift, which, as they are naturally though not necessarily connected with the fundamental differences between my point of view and my critic's, it may be useful briefly to point out.

(1.) Prof. Calderwood has somewhat misunderstood the general aim of the part of my treatise which deals with Intuitionism. He supposes me to be criticising from the outside a particular school or sect of moral philosophers. My endeavour was rather to unfold a method of reaching practical decisions which I find (more or less implicit) in the ordinary thought of the society of which I am a part, and to some extent in the natural processes of my own mind; and after tracing its different phases, to estimate carefully their scientific value. The doctrine which is called by the name Intuitionism is only one of those phases. Its scientific claims appear to me incomparably the most important, and it therefore chiefly occupies my attention during the remainder of the Book: but in the first four sections of the chapter criticised I have not yet come to speak of it specially. Thus the vagueness in my language (in these sections) of which Prof. Calderwood complains is a necessary incident of my plan of discussion. I begin by taking the notions which I have to use as I find them in common thought as expressed in common language; and I let them become gradually more definite, as my discussion brings into view distinctions in the general objects which they represent. What does the "plain man" (to whose consciousness Butler and other moralists have so pointedly referred) mean by Moral Intuition? Merely, I think, the immediate cognition of the rightness or wrongness of actions. His usage of the term does not exclude either universal abstract intuitions or particular concrete intuitions: but of the two, I think, he more often means the latter. As I have said (*M. of E.* p. 85) "we most commonly think of the dictates of conscience as relating to particular actions: and when a man is bidden, in any particular case, to 'trust to his conscience' it commonly seems to be meant that he should exercise a faculty of judging morally this particular case without reference to general rules, and even in opposition to conclusions obtained by systematic deductions from such rules." The case is stated much more strongly in the following passage from a work which has recently appeared, Mr. Bradley's *Ethical Studies* (p. 176):—"On the head that moral judgments are not discursive, no one, I think, will wish me to stay long . . . . in practical morality no doubt we may reflect on our principles, but I think it is not too much to say that we *never* do so, except where we have come upon a difficulty of particular application. If any one thinks that a man's *ordinary* judgment 'this is right or wrong' comes from the having a rule *before* the mind and bringing the particular case under it, he may be right; and I cannot try to show that he is wrong. I can only leave it to the reader to judge for himself. We say we 'see' and we 'feel' in these cases, not we 'conclude.' We prize the advice of persons who can give no reasons for what they say, etc., etc."

This statement seems to me far too sweeping: but it may help to convince Prof. Calderwood and those who think with him, that I was right in giving at the outset of my Book III. an account of Intuitionism which did not exclude the manner of thought here described as typical. In respect of the comparative value of this kind of intuition I altogether disagree with Mr. Bradley. I have no doubt that reflective persons, in proportion to their reflectiveness, come to rely rather on abstract universal intuitions relating to classes of cases conceived under general notions; and I prefer the moral thought of the reflective few to that of the unreflective many. Accordingly, these are the intuitions which I am chiefly occupied with examining in the subsequent chapters of the book. Prof. Calderwood may perhaps think that I ought to have confined myself to the consideration of Intuitionism in its most philosophical form. But this would have led me at once to Utilitarianism: because I hold that the only moral intuitions which sound philosophy can accept as ultimately valid are those which at the same time provide the only possible philosophical basis of the Utilitarian creed. I thus necessarily regard Prof. Calderwood's Intuitionism as a phase in the development of the Intuitional method, which comes naturally between the crude thought of Butler's "plain man" and the Rational Utilitarianism to which I ultimately endeavour to lead my reader.

(2.) This view made it difficult for me to give a definition of Intuitionism which should be at once clear, fair and useful. I could not give as its fundamental doctrine "that moral principles are intuitively known:" because, in my opinion, this would not distinguish it from Utilitarianism, or indeed from any other method of reasoning to moral conclusions. In all such reasonings there must be some ultimate premisses: which, as they are not known as inferences from other truths, must be known directly—that is, by Intuition. In order to raise a substantial issue, it seemed necessary in defining Intuitionism to exclude expressly the Utilitarian view, that the rightness of actions is to be ascertained by inference from an estimate of their consequences. But it was evident, again, that to exclude this without qualification would have been an absurd exaggeration of the antithesis which I had to define. No Intuitionist ever maintained that *all* our conduct can be ordered rightly without any calculation of its effects on human happiness. On the contrary, this calculation, for ourselves and for others, is expressly inculcated by the maxims of Prudence and Benevolence, as commonly understood. It is only from certain special portions of the whole region of conduct that Utilitarian foresight is shut out: and all thoughtful Intuitionists admit the importance of defining carefully these domains of special jurisdiction. For example, they are careful to tell us that the maxim of Veracity does not relieve us from the obligation of considering whether what we say is likely to give happiness or to cause pain to others: it only excludes all such considerations in so far as they may appear to justify falsehoods. Hence in stating as the fundamental assumption of Intuitionism "that we have the power of seeing clearly what actions are right and reasonable in themselves, apart from their consequences," I thought it needful to add "to some extent." These words Prof. Calderwood has unfortunately misunderstood as qualifying the *clearness* of the moral vision assumed; whereas they were only intended to limit its range.

(3.) If then the practical issue between the Intuitional and Utilitarian methods be thus precisely raised: if the question be put, whether in respect of certain kinds of conduct our moral faculty furnishes us with self-evident imperatives, which ought to be obeyed without regard to consequences, we have next to consider how this question is to be decided. Here, if I could trust my own moral faculty alone, as it acts at present, I should say that no further test is needed than the Cartesian, if rigorously applied. If I ask myself whether I see clearly and distinctly the self-evidence of any particular maxims of duty, as I see that of the formal principles "that what is right for me must be right for all persons in precisely similar circumstances" and "that I ought to prefer the greater good of another to my own lesser good:" I have no doubt whatever that I do not. I am conscious of a strong impression, an opinion on which I habitually act without hesitation, that I ought to speak truth, to perform promises, to requite benefits, &c., and also of powerful moral sentiments prompting me to the observance of these rules; but on reflection I can now clearly distinguish such opinions and sentiments from the apparently immediate and certain cognition that I have of the formal principles above mentioned. But I could not always have made this distinction; and I believe that the majority of moral persons do not make it: most "plain men" would probably say, at any rate on the first consideration of the matter, that they saw the obligations of Veracity and Good Faith as clearly and immediately as they saw those of Equity and Rational Benevolence. How then am I to argue with such persons? It will not settle the matter to tell them that they have observed their own mental processes wrongly, and that more careful introspection will show them the non-intuitive character of what they took for intuitions; especially as in many cases I do not believe that the error is one of mis-observation. Still less am I inclined to dispute the "primitiveness" or "spontaneousness" or "originality" of these apparent intuitions. On the contrary, I hold that here, as in other departments of thought, the primitive spontaneous processes of the mind are mixed with error, which is only to be removed gradually by comprehensive reflection upon the results of these processes. Through such a course of reflection I have endeavoured to lead my readers in chaps. 2-10 of Book III. of my treatise: in the hope that after they have gone through it they may find their original apprehension of the self-evidence of moral maxims importantly modified. This whole view of mine seems so new to Prof. Calderwood, that he can only reply that "correction of intuitions or of spontaneous utterances of conscience is impossible, and the proposal of it absurd"—a forcible statement, but hardly an effective argument.

H. SIDGWICK.

The Uniformity of Nature.—Mr. Pollock (MIND III. p. 425) maintains that Mr. Lewes's principle of causation, stated fully in his *Problems of Life and Mind*, and re-stated more briefly in MIND II., is the formation of a perfectly real assertion out of two hopelessly barren identical propositions; in other words, that it is illogical. Is it really so? Does Mr. Lewes anywhere say "That which is will be," or "That which has been will be?" What he does say is something very different: That which is, *is* and *will be so long as the conditions are unaltered*—an identical proposition, certainly; but illogically constructed out of two others like those set down by Mr. Pollock, certainly not. And the bearing of Mr. Lewes's principle upon the question of the Uniformity of Nature seems to me clearly discernible. There are really two points at issue between him and Prof. Bain. One is: what *is* the uniformity expected of Nature? The other is: on what is this expectation based? According to Prof. Bain, the expectation is that the future will exactly resemble the present, that present conditions will all be faithfully repeated, that present events will steadily recur. Certainly *such* an expectation (if, and wherever, it exists) is a mere guess; such a resemblance, such a repetition, such a recurrence, must assuredly be risked, and only risked, for there are no facts of experience to warrant indiscriminate forecasting of this sort. But is it not unreasonable to bring forward this purely popular and altogether loose expectation as a philosophical belief? From the philosophical stand-point, the only uniformity that can be legitimately predicated of Nature is, as Mr. Lewes keeps declaring, the uniformity of relation between the same cause and the same effect; and the expectation that *this* uniformity will continue is merely the ideal extension of an assured law of present experience. This expectation, therefore, is grounded on a dead certainty; it is the ideal form of a real fact, the mental reproduction of experiences *given* in all our conscious acts. Such a belief is no mere guess, there is no risk in the matter, when looked at so: the belief is only the inner continuation of experiences gathered from all our outward relations. This ideal extension into the future of real present experiences is quite as legitimate, and is, in fact, quite the same thing, as the mathematician's claim to be allowed to produce a straight line *ad infinitum.* We permit him to produce as far as he likes, *provided he keep his line straight as at first;* and so with the mental producing of real facts—we hold such producing permissible, *provided no change be made in the facts produced.* Now, Mr. Lewes formulates this fact, and proclaims the legitimacy of this process, with perfect precision when he lays down his principle that whatever is, is and will be so long as the conditions are unaltered.

Mr. Pollock considers all identical propositions, and this, of course, among the rest, as "hopelessly barren of real inference." But, I ask, in what other form than that of an identical proposition can an ultimate truth be expressed? You can infer nothing from the expression of an ultimate fact; it is not meant to lead to inferences, it is intended to embody in language the last results of experience. That which is, *is :* you can certainly *infer* nothing from that statement, but the statement is not therefore superfluous—rather is it eminently necessary as the emphatic expression of the real trustworthiness of experience, a trustworthiness which the fondness of many minds for personifying abstractions and constructing systems on purely ideal bases is constantly tending to obscure. Mr. Pollock's own attempt to transform Time and Space into real causative agents seems to me a very significant case in point. ALEXANDER MAIN.

The Associationist Theory of Avarice.—Professor Flint's attempt in MIND III., p. 331, to prove that Avarice does not mean the pursuit of money for its own sake, has at least the merit of boldness. It seems to follow from the writer's theory that a man who takes pleasure in hoarding money is influenced purely by the anticipation of the pleasures of imagination. He seeks it not for itself, nor yet for its actual uses, but solely as a basis for the ideal gratification of imagining all kinds of purchasable delights. The first thing which suggests itself as a difficulty in the way of this interpretation is the intensity of the miser's pursuit, to which a representation of representations of possible pleasures seems quite disproportionate as a motive. A more serious objection lies in the fact that a miser's greed is not apparently diminished by any increase of possessions, though it could scarcely be maintained that an addition say of £100 to a store of £100,000 brings any new scope for the pleasures of miserly fancy. Yet another obstacle presents itself in the fact that the fully developed miser goes on heaping up money when to part with any portion of it is an intense pain; for when this stage is reached, the imagination of purchasable enjoyments involving the idea of expenditure would cease to yield a full and pure satisfaction. For the rest, misers, so far as one can observe, are not characterised by any unusual strength of imagination, and avarice might, probably with greater justice, be set down to a feebleness of the representative faculty—to an inability to look beyond the money itself to its various uses. Prof. Flint may be right in saying that most misers would cease to care for their heaps of gold and silver were these demonetised (though in certain stages of avarice this result might not follow), but this only means that what the miser loves is money and not a particular metal, not that he is caring for anything beyond the idea of possessing money or of being rich. As to the argument that "mere matter cannot of itself be an object of affection to a spirit," one might remark that people do not ordinarily speak of avarice as an affection, and that it will hardly appear self-evident to a mind free from prepossessions that material objects are incapable of exciting passionate desires.

Prof. Flint assumes that the "typical instance" of Avarice is the only discoverable illustration of the affirmation that what is first sought as a means may afterwards be sought as an end. It seems to me, on the contrary, that the proposition represents with sufficient accuracy what takes place in the acquisition of nearly every useful habit of life, and may be deduced from some of the best-established principles of biology. The example of Money has probably been selected because of its striking and self-evident character, and this, I think, has hardly been disturbed by Prof. Flint's ingenious hypothesis. JAMES SULLY.

Mr. Matthew Arnold on Descartes' 'Cogito ergo sum.' ['*God and the Bible.*' Chapter II.]—It is not the whole of this chapter that I propose to comment on in the compass of a short note like the present, but only those parts of it in which the author declares his dissatisfaction with the *Cogito ergo sum* of Descartes. This whole book and its predecessor, *Literature and Dogma*, seem to me to contain purer and profounder truth than any recent works that I know of in religious philosophy. The "enduring power not ourselves that makes for righteousness" is to me a true expression for the intellectual conception which facts compel us to frame of the Divine, a conception which is personified independently by the play of our imaginative emotion. God is not proved to be a Person first and worshipped afterwards, but the worship *is* the personification. Nor does the truth lose its truthfulness by being presented in a literary and not a scientific dress. All the vigour and lucidity of style, the fertility of illustration and argument, serve but to bring that truth home to multitudes who would instinctively turn away from a formal treatise.

It is quite in vain for the author of *In utrumque paratus* (both versions, 1849 as well as 1869), of the address to Pausanias in *Empedocles on Etna*, of *The Divinity*, and of very much besides, to try to persuade us that he is no philosopher. I am sorry for him. It is more his misfortune than his fault. He was born one and must make the best of it. Philosophy, especially religious philosophy, is not a matter of technicality and scholastic learning, but of reflective insight into the facts of consciousness. The truest philosophy may consist not only with departure from the terminology of approved philosophers, but also with frequent misconstruing of their statements.

I think we have an instance of the latter in the present case. Mr. Arnold writes, speaking of the *Cogito ergo sum* (p. 64), that "from this fundamental axiom of Descartes we were never able to derive that light and satisfaction which others derived from it. And for the following reason:—The philosopher omits to tell us what he exactly means by to *be*, to *exist*. These terms stand for the most plain, positive, fundamental of certainties, which is established for us by the fact that we think. Now what to *think* means we all know; but even if we did not, Descartes tells us. 'A thing which thinks,' says he, 'is a thing which doubts, which understands, which conceives, which affirms, which denies, which wishes, which declines, which imagines also, and which feels.' So far so good. But Descartes does not tell us what those other terms *be* and *exist* mean, which express that fundamental certainty established for us by the fact of our thinking; and this we do not so clearly know of ourselves without being told."

Now this is precisely what the axiom, as I understand it, does tell us. It translates *being* by *thinking*. It is not the conclusion of a syllogism, but what is called a *consequentia immediata*, as for instance "the whole is greater than the part, therefore the part is less than the whole;" the *sum* and the *cogito* are identical. It should be rendered "I think, that is to say, I am." In reading it, the stress is on the *cogito*. The *cogito* is the explanation of the *sum*. True it does not tell us what existence *in general* is; that would disqualify it at once for a *beginning* of philosophy; it speaks only of a particular case, the case of ourself. My existence is my consciousness. And then its peculiar importance comes as much from the position which it occupies in Descartes' method as from its content; for the place which it holds in his method is the same as the place which it holds in all philosophy, that is, the first. It is the first certainty after universal doubt. It is the expression of the fact of Self-consciousness or Reflection. Others before, as well as after, Descartes had seen and expressed the same fact of self-consciousness, and in language as clear and forcible as his. But they had not made it the beginning of their method; they had not based all their philosophy upon it. They had struck the same note, but not as the key-note of their tune.

Descartes' own view of the matter will be clear from the following passage of the *Meditationes de Prima Philosophia—Responsio ad secundas objectiones:* "Cum autem advertimus nos esse res cogitantes, prima quædam notio est quæ ex nullo syllogismo concluditur; neque etiam cum quis dicit, *ego cogito ergo sum, sive existo*, existentiam ex cogitatione per syllogismum deducit, sed tanquam rem per se notam simplici mentis intuitu agnoscit, ut patet ex eo quod si eam per syllogismum deduceret, novisse prius debuisset istam majorem, *illud omne quod cogitat est, sive existit*, atqui profecto ipsam potius discit ex eo quod apud se experiatur fieri non posse ut cogitet nisi existat. Ea enim est natura nostræ mentis ut generales propositiones ex particularium cognitione efformet."

If I might conjecture how, or at least where, Mr. Arnold has been misled, I should point to the passage which he quotes at p. 95 from the *Discours de la Méthode*, "in order to think one must be:—'*Pour penser il faut être.*'" He has understood Descartes to say he saw clearly that being was a necessary pre-requisite of thinking; whereas the words may very well mean that being is inseparably involved in thinking. The passage is one in which Descartes inquires in what the evidence, the certitude, of his *Cogito ergo sum* consisted, in order that he might require that self-same evidence and no other for admitting other things as true, so as to raise that self-same evidence into a general rule. And he says that he found this evidence to consist in nothing but his own clear and distinct perception of the fact in question. There is nothing whatever to show that he understood *being* to be anything separable from *thinking* and a pre-requisite of it.

If this were the true meaning of Descartes, and this the fundamental truth of philosophy, the results would be widely different from what they are on the true interpretation of his meaning. If the true sense of *Cogito ergo sum* is what I contend, *My existence means my consciousness*, we can go on to generalise this in application to other things; their existence means the consciousness which I or others have of them; *esse* means *percipi*. But if, on the opposite interpretation, existence is taken as a pre-requisite of consciousness, something which manifests itself as having consciousness, then we have as result a Subject or source of consciousness, the nature of which *per se* is not only unknown, but for aught we can see utterly unknowable by us, being knowable only by its effect, consciousness; and *esse* means *percipere*, for that is all the meaning left in the word.

In conclusion, I am bound to admit that Mr. Arnold does not stand alone in his view of Descartes' meaning. No less a name than Kant's may be cited in support of it. At least I find Kant saying, in a note to the *Critique of Pure Reason*, *2nd edit.* (p. 308, Hartenstein, 1853), "The *Ich denke* is, as already said, an empirical proposition, and contains the proposition *Ich existire* in itself. But I cannot say, All that thinks exists; for then the property of thought would make all beings that possess it necessary beings. Hence also my own existence cannot be regarded as inferred from the proposition *Ich denke*, as Cartesius holds (because then the major must precede: All that thinks exists), but it is identical with it." Kant sees perfectly well what the true sense of *Cogito ergo sum* must be, but denies that Descartes meant it in that sense. The passage, however, which I have quoted from Descartes puts it beyond a doubt that this true sense was his own also. SHADWORTH H. HODGSON.

Mr. Matthew Arnold on Bishop Butler's Doctrine of Self-Love.—In the *Contemporary Review* (March, 1876) Mr. Matthew Arnold writes of Butler (p. 575): "He describes self-love, occasionally as 'a general desire of our own happiness.' But he explains always that he means by this the pursuit of our *temporal* good as he calls it; the cool consideration of our own temporal advantage."—Is not the latter rather Butler's occasional description; the former his habitual definition? "The object" which self-love "pursues is somewhat internal, our own happiness, enjoyment, satisfaction; whether we have or have not a distinct particular perception what it is" (Sermon XI.); as in the pursuit of a "reward without any distinct knowledge what the reward will be" (Note on Sermon I.),—without being restricted then to *temporal* pleasures. "Religion is so far from disowning the principle of self-love, that it often addresses itself to that very principle" (Sermon XI.). To this principle are addressed Butler's recommendations of the religious affections. As they rest in their objects as ends equally with the other affections, so equally are they consistent with the "desire of happiness" (Sermons on the Love of God, *passim*). The description of self-love as the "pursuit of our temporal good" is only occasionally (in the Preface and first three Sermons) addressed to the worldling, doubtless "to obviate that scorn which one sees rising upon the faces of people who are said to know the world, when mention is made of a disinterested action." Expressions such as "Self-love though confined to the interest of this life" (Preface) mean evidently "though *it be supposed*" not "though *it is*." Compare Sermon III.: "Self-love, though confined to the interest of the present world does in general perfectly coincide with virtue, and leads us to one and the same course of life. But whatever exceptions there are to this, all shall be set right." "Duty and interest are perfectly coincident; for the most part in this world, but entirely and in every instance, if we take in the future and the whole."

It is important to clear up this mis-statement *in limine*, because it co-operates with the associations awakened by such phrases as "private interest" and "contracted affection" (associations against which Butler has guarded so carefully) in rendering unintelligible to Mr. M. Arnold (pp. 576, 577) Butler's position that benevolence has at least as great respect to self-love as any particular passion. There must be something peculiarly difficult in Butler's theory, if "at past fifty years' of age" Mr. Arnold is found not only "shivering" over it (p. 575) but mistaken. T. Y. EDGEWORTH.

XI.—CORRESPONDENCE.

PSYCHOLOGY AND EDUCATION.

ALTHOUGH "the practical application of psychological theory to Education" has not yet been treated of in MIND, I hope and believe before long it "will receive the attention it so urgently claims at the present time."

Few thinkers will deny the logical force of the claim, but the practical application is not without its difficulties. Let us notice some of these. In the first place, it is the business of Psychology to analyse the mental operations, classify them, and exhibit them in relation to general principles. It is evident that for this to be done the machinery must in thought be momentarily stopped and the present effect photographed. The psychologist demands what may be termed a *statical* condition of mind. This is precisely what the educator never enjoys. How then must he study Psychology? Can he by some inspiration or by some intuition be rapt to synchronise with the moving machine, or shall he cognise the parts and trust to experience and sympathy to inspire the breath of life and waft him into dynamics? Is there a region of transcendental union between the mind of teacher and pupil, or must this too submit to the growing vulgarity of analysis?

Shall the educator study *element* or *faculty?* This implies a second difficulty—not merely motion as opposed to rest, but *com-*

plexity. In the living creature there is action and reaction, and this varying with individual constitution. As physiology is to anatomy, so, at least in part, is Educational Science to Psychology. We have yet another disturbing element, *growth.* Nature withdraws from mind vital force for the formative process in early years, as she does daily for digestion. This flux of power varies with age, sex, environment. Nor is this all, there is the primal element of *heredity.* Further, Education seeks not only to know but to *operate;* she should estimate her motive forces, recognise her limits, and look through to her end. The vital force of each individual is limited if not calculable, and modifiable susceptibility is inherent and special. How far then can the principles of Education become general, how far become capable of being lifted out of the region of empiricism?

This appears to me a rough outline of the claim of Education on Psychology—a claim that, so far as I know, has not been fairly admitted, at least in England, still less satisfied. I am no German scholar, but I am told that all this has been thought out in Germany; yet asking, with Antonio, "Is that anything now?" I am told by others,—"Gratiano speaks an infinite deal of nothing, more than any man in all Venice. His reasons are as two grains of wheat hid in two bushels of chaff; you shall seek all day ere you find them; and when you have them they are not worth the search."

C. H. LAKE.

XII.—NEW BOOKS.*

Plato and the Older Academy, translated with the author's sanction from the German of Dr. EDUARD ZELLER, by Sarah Frances Alleyne and Alfred Goodwin, M.A. London: Longmans and Co. 1876. Pp. 629.

This is a translation of Part II. Section 2 of the *Philosophie der Griechen;* Section I. (*Socrates and the Socratic Schools*) being formerly translated by Dr. Reichel. Miss Alleyne has translated the text; for the notes (which form so great a part of Zeller's work) and for the revision of the whole Mr. Goodwin is responsible.

System of Positive Polity. By AUGUSTE COMTE. Vol. III., containing Social Dynamics or the General Theory of Human Progress. London: Longmans and Co. 1876. Pp. 536.

"The preface, appendix, introduction, and first two chapters have been translated by Edward Spencer Beesly, who has also revised and edited the rest of the volume, and added the table of contents, marginal analysis, references and footnotes throughout. Chap. iii. has been translated by Samuel Lobb; chap. iv. by Fanny

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* Under this head, it is intended, *as a rule*, to give information only without criticism.

Some recent Italian and other works have been received, of which notice is unavoidably postponed till No. V.—ED.

Hertz; chap. vi. by John Henry Bridges; chap. vii. and Conclusion by Vernon Lushington and Godfrey Lushington."

The Influence of Descartes on Metaphysical Speculation in England; being a degree-thesis. By the REV. W. CUNNINGHAM. London and Cambridge: Macmillan and Co. 1876. Pp. 185.

This is a dissertation approved by the examiners for the degree of Doctor of Science at the University of Edinburgh. An introduction of 48 pages gives a statement of the problem of philosophy, and points out the significance of the history of philosophy. The language and style of thought are Hegelian. The book contains eight chapters. I. Internal Connection of various Systems. II. Pre-Cartesian Philosophy. III. Réné Descartes. IV. The Contemporaries of Descartes. V. John Locke and his School. VI. George Berkeley. VII. David Hume. VIII. Conclusion. There are three stages of modern philosophy, according to the "principal forms of the subjective Spirit, the Soul, Consciousness, and Spirit as such." Omitting the last, which is beyond the scope of the dissertation, the author has to treat of the two former, which square pretty well with præ- and post-Cartesian philosophies. The system of Descartes is the first philosophy of Consciousness. The leading positions of Descartes are clearly stated and concisely criticised. The outcome of Descartes' spiritual dogmatism is tersely put—"He commenced by asserting the sole reality of the Thinking Principle: he proceeds to arguments which leave but little room for its existence." Hobbes was much indebted to the French philosopher. Moreover, they conceived the scope and office of philosophy in a similar way, and are at one in excluding religion from the sphere of philosophy. The influence of Descartes on Locke is fully brought out, an influence chiefly negative, but yet regulative of the Lockian course of thought. In the strife about innate ideas, "Locke refutes Descartes with a weapon which he had himself furnished,—the recognition of conscious thinking as the essence of mind." Subsequently to Locke the influence of Descartes on English thought is mostly through Locke's writings. From Hobbes to Reid, however, the author is careful to point out Cartesian affinities and inspirations. "Hume and Spinoza are the two authors whose ways of thinking are most apart, and who crown the diverging series of successors of Descartes." A useful feature of the book consists of references to works, English and German, prefixed to the sections, where the most recent critical opinions may be found.

Studies in the Philosophy of Religion and History. By A. M. FAIRBAIRN. London: Strahan & Co. 1876. Pp. 402.

The Studies are four in number:—I. The Idea of God—its Genesis and Development. II. Theism and Scientific Speculation. III. The Belief in Immortality (in India and Greece). IV. The Place of the Indo-European and Semitic Races in History (Comparative Psychology and the Philosophy of History—The Races in Civilisation—The Races in Religion—The Races in Literature and Philosophy). They are intended as merely preliminary to a Philosophy and a History of Religion—in "an age which seeks to increase by a Science of Religion the number of the already recognised and cultivated sciences."

Logical Praxis: comprising a Summary of the principles of Logical Science and Copious Exercises for Practical Application. By HENRY N. DAY. New York and London: Sampson Low. Pp. 148.

This is a practical book on Logic by an American writer. The author refers to his larger *Elements of Logic* for his detailed views. A prominent feature is a collection of useful exercises at the end of each chapter. The author adopts the attributive theory of Proposition. He notes the circumstance that quantity in extension has a much fuller technical nomenclature than quantity in comprehension. He denies the validity of the immediate inference—A is not B, therefore A is non-B—on the ground that "the subject must be recognised as belonging to the same class as the attribute to which the quality is transferred." Barbara, Celarent and their kindred are disowned, the forms of ratiocination all flowing from the one comprehensive rule of deduction: "Whatever attribute is affirmed or denied of a whole class, may be affirmed or denied of any part of the class." Material Induction is not treated.

A Classified English Vocabulary: being an attempt to facilitate a Knowledge of Words and their Meanings by an arrangement of Ideas according to their Scientific Connections. London: Provost & Co., 1876. Pp. 112.

The author classifies all terms under the six heads of (1), Existences in general; (2), the Material World; (3), the World of Mind; (4), The Social World; (5), Things Arbitrarily Distinguished, Constructed or Produced; (6), Persons. These classes contain sub-classes, &c., until all usual words are grouped according to their closest affinities. A leading object of the book is to correct vague habits of thought due to the generalisation and specialisation of terms.

The Physical Basis of Immortality. By ANTOINETTE BROWN BLACKWELL. New York and London: Sampson Low. Pp. 324.

Convinced that of all the questions which can agitate the mind of man, that of the duration of personal consciousness holds the first place for its practical interest, the author has, for twenty-five years, diligently sought for evidence on the subject. The result of her observations and reflections is the belief that "consciousness" associated with "co-operative energies" is an abiding fact of the Universe. She adduces a variety of scientific truths in support of this conclusion.

Hartmann, Dühring und Lange. Zur Geschichte der deutschen Philosophie im XIX. Jahrhundert. Ein kritischer Essay von HANS VAIHINGER. Iserlohn, 1876. Pp. 235.

The three authors named on this title-page are singled out as representatives of the leading philosophical views of "the youngest" Germany. Hartmann is Idealist, Dühring Realist, Lange Criticist. The metaphysical opinions and practical philosophies of these thinkers are examined and compared. Although desiring to be impartial, the author's sympathies (and advocacy) are entirely with the writer named last. Metaphysically Idealism and Realism are untenable, resting on assumptions which can never be made good; ethically, moral elevation is to be found "neither in Pessimism nor in socialistic Utopism. Lange, therefore, on whom the Kantian mantle had fallen, is the apostle of the true faith. His *Geschichte des Materialismus* contains "the programme of the Philosophy of the Future."

Steinthal's Psychologische Formeln zusammenhängend entwickelt. Von Dr. GUSTAV GLOGAU. Berlin, 1876. Pp. 176.

The present little volume is intended to give those who are familiar with Steinthal's *Einleitung in die Psychologie* the opportunity of forming a clear and coherent system of psychological truth out of a mass of detached observations and reflections. Language is too coarse a medium for describing the results of analysis of psychical processes. Steinthal's formulæ are affirmed to give an abstract picture of the spiritual life. The writer has a firm belief that Steinthal is the psychologist of the century. The formulæ are more related to those of chemistry than of mathematical physics, exhibiting no measurement of the forces at work.

Die Gesetze des menschlichen Herzens wissenschaftlich dargestellt als die Formale Logik des reinen Gefühles. Von ALBRECHT KRAUSE. Lahr, 1876. Pp. 407.

The greatest misfortune of our time is the antagonism of Thought and Feeling. Common men and philosophers assume or proclaim the superiority of the one or the other, failing to see that they are offshoots from a common stem. As the understanding has its norms of thinking and knowing, so is there a logic for the synthetic apodictic judgments of emotion. It is the object of the present work to point out the close parallelism between the logic of feeling and of thought, to determine the pure forms of feeling, and to order the several varieties under the categories of quantity, quality, relation and modality.

W. C. COUPLAND.

A Systematic and Historical Exposition of Roman Law, in the Order of a Code. By WILLIAM A. HUNTER, M.A., Professor of Roman Law, University College, London, and of the Middle Temple, Barrister-at-Law. Maxwell and Son, 1876.

This work—in matter, the Roman Law—is, in form, perhaps one of the best exemplifications of Logical Method that has yet appeared. The arts and devices of Classification are now accessible to every student; that they have not hitherto been carried out as they might be, is owing partly to their being recent, and partly to people's dislike to take trouble where the advantages are not apparent.

The Natural History Sciences, for whose benefit an elaborate logic of Classification was first conceived, are still the leading examples of the methods, although every one of them admits of great improvements in this respect. Next to these, perhaps, as a fitting subject for logical arrangement, is the classification and description of Diseases; but this is still farther from realising the perfect idea of the logician.

In Law, there is a fine opportunity for methodical treatment. A host of details with partial agreements and partial disagreements, and a more than ordinary demand for the aids that are given by classification, supply a strong case for the classifying genius; while the natural state of the subject and the form that it assumes through the circumstances of its origin are apt to be very far removed from what the best classification would bring it to.

The earliest and greatest law reformer of modern times was a distinguished classifier. But the state of Logic in Bentham's time was not equal to the occasion, and his great natural sagacity did more for him than all the helps he got from Sanderson's Logic. His greatest idea was Bifurcation, which goes but a very little way; being in fact only a mode of exhibiting contrasts. Yet Bentham worked wonders in improving the arrangement of legal topics, that is to say, in giving to law the shape of a Code.

Professor Hunter starts from a much higher vantage ground. Placing clearly before him, first, the self-evident although but lately formulated basis of classification—"to arrange the objects in groups where the points of resemblance are numerous and important," and, secondly, the requirement—that the descriptive details of each group should follow a uniform order,—he has endeavoured, with due regard to the various exigencies of his subject, to cast it into the prepared mould. He is sufficiently awake to the circumstances that render the strict logical type occasionally inexpedient; and is not guilty of pedantically forcing the materials at all hazards into the set form.

It is not within our province to say what the effect of the operation is towards the author's immediate object of improving the exposition of the Roman Law for the purposes of the student; but we may say that the book is eminently readable and intelligible. For the understanding of Roman History it is of the highest value. We are brought face to face with the Roman people in some of their most distinguishing characteristics—their ready inventions to meet every new situation, their strong common sense, their superiority to prejudice, the growing humanity of their manners, together with their peculiar share of our common weaknesses. The illustrative examples of the various legal maxims introduce us to the recesses of their private life—their homes, their shops, their goings out and comings in. It was a perception of this effect that led De Tocqueville to investigate the French life of last century from the records of private law suits.

A. B.

XIII.—NEWS.

SINCE the article on *Philosophy in London* in the present number was written, an important change has been announced in the plan of examinations for the degree of Bachelor of Science in the University, whereby Logic and Psychology will cease to be compulsory subjects, and thus vanishes one of the most characteristic features of the general scheme of the University as set forth in the article. The B. Sc. examination will as before consist of two stages, but will not henceforth have reference to a merely *general* discipline in the sciences. At the second stage, instead of being required as heretofore to pass in five different subjects, making with the four subjects of the first stage a tolerably complete round of the chief sciences, a candidate in future need not bring up more than three out of nine subjects, of which Logic and Psychology form one. That is to say, he will begin to *specialise* before reaching the grade of Bachelor. Care, however, is taken to make the earlier examination more comprehensive than hitherto—in fact, fairly co-extensive with the field of general science as commonly understood. The practical and other reasons for the change are very strong, nor is it greatly to be regretted, in the present state of instruction or feeling about instruction as described in the article, that the philosophical examination will no longer be imposed on all the candidates. At the same time it is right to point out that the general scheme of the University is dislocated by giving the B. Sc. degree (even partially) a special character; while, if Logic and Psychology are allowed (as they are) to rank as Science, they cannot properly be ranged (as they are) with departments so special—not to say concrete—as botany, zoology, or physical geography and geology. About Psychology there may be a question, if it is not clearly conceived as the great fundamental subjective science—the root of one half of human knowledge, or rather, the key to one whole side of all human knowledge; but surely Logic at least pertains to the most general scientific discipline. In no longer requiring a knowledge of Logic from its Bachelors of Science, the University is throwing away one of its chief distinctions, and will not so easily replace or recover it.

No change has been made in the regulations for admission to the degree of D. Sc., except that candidates who have prolonged the interval between the first and second stages of the B. Sc. examination from one year to two years or more, over their special studies, may go up for the Doctorate after a single year instead of two years as before. This change seems a reasonable one in the new circumstances, but the reform really called for in the D. Sc. regulations is that some evidence of original work should be required from the candidates, by way of written dissertation or otherwise. In the department of Mental Science at least, the written answers to papers of miscellaneous questions which are at present the only test imposed, keep the degree practically at the level of the ordinary M.A. (Branch III.), except in so far as the greater range of subjects implies a longer and wider study. But this very width of range—extending from Physiology of the Nervous System through Mental Philosophy (in all its branches) to Political Philosophy—is itself a grievance. When a man has begun to specialise to any purpose, he will find in any one of the subjects indicated occupation enough—supposing that "a thorough practical knowledge" is by all available means exacted. It is doubtless because of the extreme width of the range of the examination that in all the last sixteen years since the degree was instituted, no more than two candidates have presented themselves for the Doctorate in Mental Science. One of them, Mr. P. K. Ráy, a native of Bengal, has this year succeeded in passing, but such a result is hardly a sufficient justification of the present examination-scheme.

M. Littré, in the last number of *La Philosophie Positive*, announces as in the press a fourth edition of Comte's fundamental work the *Cours de Philosophie Positive*. The first edition (of which the last volume appeared in 1842) was long out of print when in 1864 a second edition (with Introduction and Index) was issued by M. Littré. This had to be followed in a few years by a third, and now the fourth is called for, to which M. Littré will furnish a new preface. He justly remarks that three editions in twelve years of a book so large and abstruse shows what ground Comte has gained in the esteem of thinking readers.

A new quarterly journal, devoted to Psychology and Speculative Philosophy, is announced to appear at Leipsic. It will be edited by Professor Wundt, assisted by Drs. Avenarius, Göring and Heinze.

The Rev. William Knight (minister in Dundee) has been appointed Professor of Moral Philosophy in the University of St. Andrews.

The chair of Moral Philosophy in the University of Aberdeen has become vacant by the retirement of Professor Martin, who first in Marischal College, and afterwards (since 1860, when it was fused with King's College) at the University, has held office for about thirty years.

MIND

A QUARTERLY REVIEW

OF

PSYCHOLOGY AND PHILOSOPHY,

EDITED BY

GEORGE CROOM ROBERTSON,

PROFESSOR OF PHILOSOPHY OF MIND AND LOGIC IN UNIVERSITY COLLEGE,
LONDON.

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